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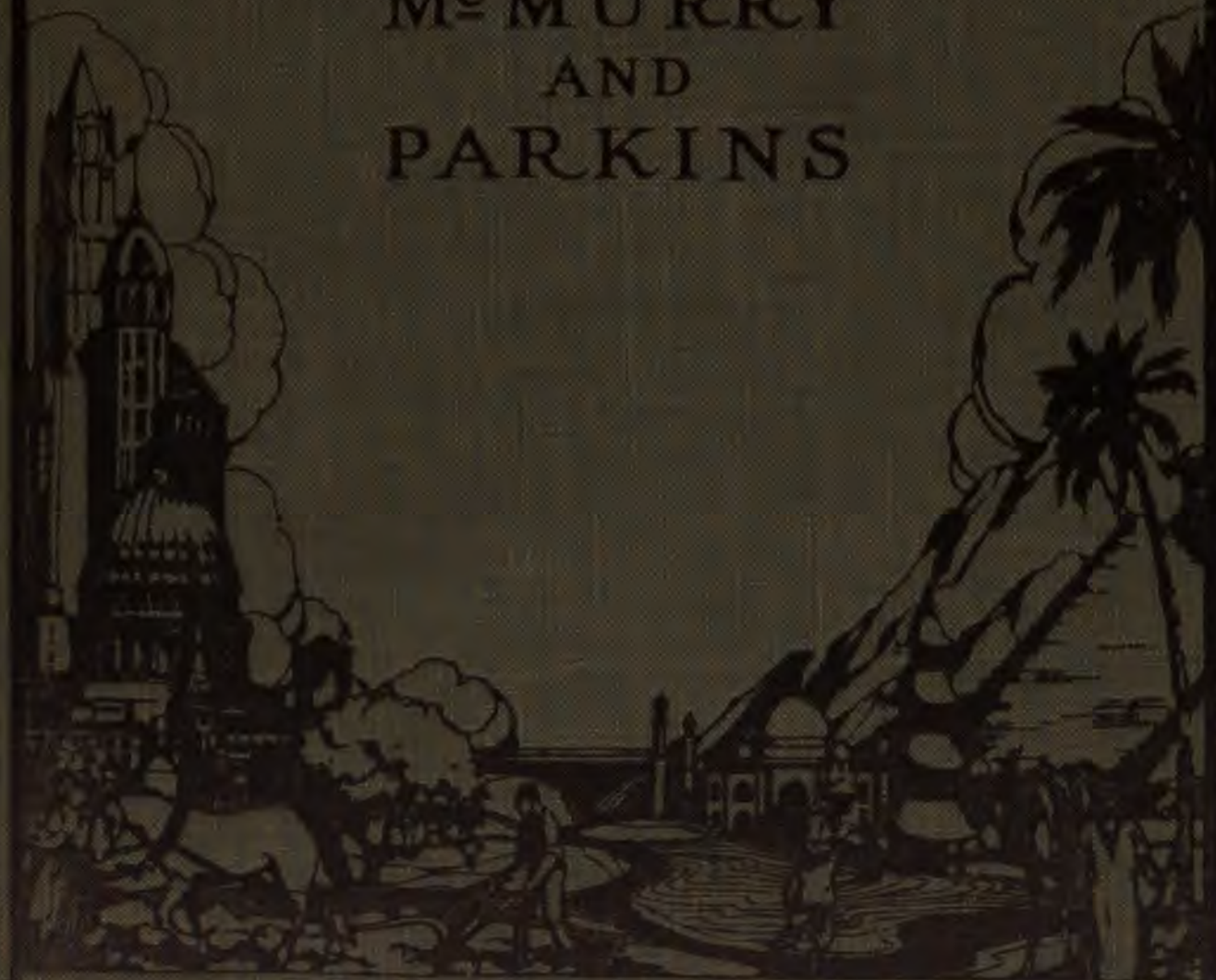
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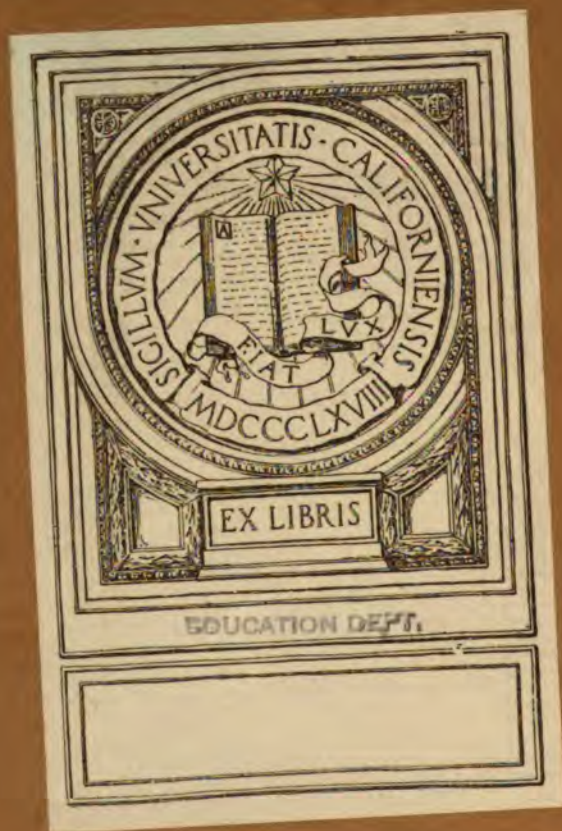


ELEMENTARY GEOGRAPHY

McMURRY
AND
PARKINS



THE MACMILLAN COMPANY





SECRET

ELEMENTARY GEOGRAPHY

BY

FRANK M. McMURRY

Teachers College, Columbia University

AND

A. E. PARKINS

George Peabody College for Teachers

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The Statue of Liberty

This famous statue, a gift from the people of France, stands on a small island in New York harbor.

PREFACE

The first book in Geography has always been the least interesting Geography text placed in the hands of children. If possible, however, it should be the most interesting, for the permanent attitude of children toward the subject is largely determined by their first study of it.

Importance of the problem method in Geography for young children

How can improvement be effected? A simple and attractive style of presentation, much detail about the customs of people, and interesting pictures have all proved helpful; but they are inadequate. Modern education suggests a change in the selection and organization of subject matter that may be as great an aid as these other means combined. That is the centering of the treatment in other things than such topics as location, surface features, climate, etc. These are colorless, so far as young children are concerned; and no treatment organized solely on such a basis can avoid being coldly informational. The proposed substitutes for them are questions or problems within the field of Geography that are suggested by the nature and interests of children. In the one case the child is subordinated to the subject; in the other, the subject is subordinated to the child. The two points of view are as wide apart as the poles, and their varying influence in the preparation of a text is constant.

This text has been prepared from the viewpoint of the child's interests. Each section deals with questions that are interesting to young people. The fact that it is so directly based on children's interests and experiences gives more than the customary guarantee that it will prove successful.

Another means for securing greater concreteness has been emphasized. A farm in one section may be typical, in appearance and method of cultivation, of thousands of other farms in the United States. Likewise one great city closely resembles others in general appearance and leading

occupations; and one despotic government is like others that are despotic. General descriptions of these are very likely to be abstract and uninteresting; but a detailed description of an actual example is likely to prove highly interesting, and if it is typical, it can clearly explain a whole class in the most effective way.

The use of type studies in connection with these problems

For these reasons type treatments are numerous in this book. For instance, note how, under the problem organization of subject matter, New York City is presented as a type of great cities (p. 67); how a farm in central Ohio is described at length as a representative of many others (p. 98); and how the old despotic Russian government is given a special amount of space for a similar reason (p. 230). The vividness of mental pictures thus secured may be regarded as one of the chief merits of the text.

Any text that is studied closely has a marked effect on methods of study. Mere lists of facts lead to a more or less thoughtless memorizing. Narrow questions with brief answers have the same effect. On the other hand, a text whose subject matter is organized into units consisting each of the solution of a problem that is worth while leads children to study by such units. The presence of a question that has value to them influences them to exercise judgment in weighing the relative value of details. At the same time their interest in the question causes them to assimilate the data offered, as well as to take some initiative in testing and supplementing those data. Thus the principal elements of good thinking are dependent upon the organization of the facts about live problems; and a text that makes this provision tends daily to impress a model of thinking upon the children.

Influence of the text on children's methods of study

The great importance of this matter in a first text in Geography is evident, when it is recalled that children's bad habits of study are a constant

cause of complaint above the fifth grade, and that the habits complained of must have been formed in the grades preceding.

The first part of this volume is devoted to an introduction to some of the fundamental conceptions of Geography, because actual observations about the soil, rivers, industries, etc., are the sole final basis for the comprehension of such subjects in distant regions. Almost every locality furnishes examples of more than half of all the phenomena that form the subject matter of Geography; and a careful study of these, by means of excursions and class discussions, will give a great impetus toward vivid picturing of distant conditions.

The text treats such subjects as are common to most localities; and it is supplemented by the suggestions at the end of each section, which suggest additional study of local features. Beginning Geography is very lacking unless children are led to form the habit of scouring their home environment in search of geographical material.

Since children vary greatly in mental capacity, a text should be flexible enough to adapt itself to the full ability of each member of a class. It is not advisable that a child who has twice the ability of another should race through a book twice as fast. He can better remain with children of his own age and interests and employ his higher ability by pursuing a wider course of study. He can cover all the problems assigned to his classmates, and others in addition. In the suggestions found

at the end of each chapter provision is made for the exceptional child, who can take up as many of the questions there proposed as his ability allows.

The child is not interested, nor is it essential that he should be, in the origin and classification of land forms. The maps should in a simple way show culture in relation to latitude, longitude, and altitude. The physical map is therefore used as the base for the location of countries, states, cities, railroads, and other works of man. Clearness and simplicity should be the chief characteristic of the maps in an elementary text. This ideal has constantly been kept in mind in the preparation of the maps. Economic maps, such as are abundant in the Advanced Geography, have been introduced sparingly. Their over-use would multiply the difficulties of the elementary text and result in a degree of "spiral" treatment that is no longer sanctioned by progressive courses of study.

The illustrations in an elementary geography should both explain the text and in part some idea of the variety and beauty of the works of Nature and of Man in that vast world of which most children are destined to see but little and to which this book may possibly be their only introduction. Not only, therefore, have the half-tones been selected with exceptional care for their instructional value: only such photographs have been used as could be reproduced faithfully without disfigurement by the artist's brush. Our ideal has been a moderate number of large, vivid photographic reproductions rather than an excessive number of small, diagrammatic cuts.

F. M. McMURRY

A. E. PARKINS

The significance of the introductory chapter

Character of maps and illustrations

The provision for the varying abilities of children

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PART I. WORLD GEOGRAPHY

I. THE GREATEST OCCUPATION IN THE WORLD — AGRICULTURE

1. The Importance of the Soil

Everybody has a great many wants. Every girl likes to have a doll, every boy a top and a ball, and all people

Three things that everyone must have

1. Our need for food

like pictures, story-books, and flowers. Anyone could name dozens of other things that he wants.

Many of these things are not very important; in fact, no one of us would greatly suffer if he had to do without all the things named above. But there is one thing that everyone must have, and that is food. We eat three times each day; and if even one meal is left out, we begin to feel weak. No one can live many days without food.

Probably the two most necessary things in all the world are bread and milk. But there are many others that approach them in importance. Make a list of the ten kinds of food that you consider most valuable, and compare it with a list made by someone else. What stores near you sell food, and how do they compare

in number with other kinds of stores? In what way does the use of rooms in your house show that food is a very necessary thing for your family?

While clothing is not as necessary to life as food, it is still very important. In hot countries

2. Our need for clothing and shelter

less clothing is worn than here; but even the savages there wear some, as is shown in Fig. 1. The better civilized people there dress much as we do, except that the materials used are lighter in color and in weight. In our own country people need many kinds of clothing in summer; and without heavy wraps in winter outdoor work in many places would have to stop. Can you give examples?

Shelter is, possibly, as important as clothing.

Even in hot countries people must have houses of some sort to protect them from the sun and rain. Note the kind shown in Fig. 2. In our country protection against cold is very



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Fig. 1



Fig. 2

important, and for this purpose the houses must be tightly built. In addition we must have fuel, such as coal or gas or wood, to keep us warm. Thus everybody must have food, clothing, and shelter.

Where are the materials for these three things found? For example, take food first. Bread is made out of flour; flour is made out of wheat; and wheat grows from the soil. Again, milk comes from cows, and the cows produce it by eating grass; but the grass, like the wheat, grows from the soil. In the same way trace back to its beginning each of the foods in your list of ten kinds. Possibly all of them come from the soil. Yet there are some common foods that do not depend on the soil. Can you give examples?

Next consider clothing. Many dresses are made of cotton, and we know that cotton grows from the ground. Fig. 3 shows a cotton field. Much clothing is made of wool, which comes from sheep.

But, again, the sheep are able to produce it by eating grass, and thus they depend on the soil to grow it. Linen collars and cuffs and handkerchiefs are made out of flax, which is a farm crop, just as wheat is.

Where does the leather for your shoes come from? Find out, if you do not know. What are ribbons and silk dresses made of, and how is the material produced? Make a list of the different kinds of clothing

that you wear, and trace each back to its beginning. Have you named anything that does not depend upon the soil?

Many kinds of material are used for shelter. In Fig. 4 you see an Indian wig-



Fig. 3

wam. Where must the poles have come from that form the frame of the tent? The covering for such wigwams is often made out of the skins of animals. Can you show how the soil has been necessary to produce them?

Look about your home to see where its many parts have come from. Where were the materials for the floors, tables, and chairs produced? Those for the rugs or carpets? Where was the material for the bricks in the chimney found, and the stone for the foundation?

Of all the different materials that you have named for food, clothing, and shelter, how many do not grow from the soil, or depend upon others that grow there? What statement can you make, therefore, about the importance of the soil in supplying materials for food, clothing, and shelter?

So many things come from the soil that a great many persons are employed in raising them. Some of these people are called *gardeners*. Where have you seen gardeners at work? Can you make a list of things that they raise? Others of these people are called *ranchmen*, particularly when they raise many cattle and sheep. Some are called *dairymen*. Can you tell about their work? But men who till the soil are most commonly called *farmers*, and the pieces of land that they cultivate are called *farms*.

While cities occupy a large amount of space, it is very small compared with the space occupied by farms. Also, while our cities contain great numbers of people, there are as many more that live in the country. In fact, farming is the greatest occupation in the world.



Fig. 4

© Brown Bros.

Since the soil is so important, it is worth while to study about it. If you have ever made mud pies, or played in the dirt in other ways, you have, perhaps, wondered what the soil is made of. It has not always been dirt or mud.

Where the
soil comes
from

1. What it is
made of

You know that the wood in your desk has not always been a part of the desk; it used to be a part of a tree, and has a long story to tell about itself before it was brought to your school. So, also, the soil has a long story to tell about itself. Let us see what this story is.

When mud dries upon your hands, and you rub them together, you can notice an unpleasant, gritty feeling. This is

caused by hard bits of something in the soil that scrape together. If you rub some of this dirt upon a smooth piece of glass, you can perhaps hear it scratch the glass. This shows that these little bits must be very hard; for if they were not, they could not scratch anything so hard as glass. They must be even harder than a pin, for you cannot scratch glass with a pin.

It will help you to find out what these bits are, if you examine some sandy soil. The grains of sand are tiny bits of rock, large enough to be seen clearly. When they are rubbed against glass, they scratch it, because they are very hard and sharp.

Sand is made of rock that has been broken up into fine pieces. It is a kind of soil, but its bits are coarser than those in many other kinds. The soil that you have seen, such as that in the school yard or by the side of the walk or in a flower-pot, was once a part of hard rock.

Soil is made in several ways, which you may learn

How soil is made about later; but most of it is formed by the decay of rock. You know that the stumps of trees and the boards in sidewalks, after a long time, become so soft that they fall to pieces. Perhaps you have called it "rotting," but that means the same as decaying. Fig. 5 shows such a stump.



Fig. 5

Other things, even harder than wood, decay in much the same way, although perhaps more slowly. Bright and shiny nails decay until they become a soft, yellow rust. Tin cans and iron pipes rust until holes appear in them and they leak.

You may not have thought that stones also decay, but they do. The headstones in old graveyards are often so crumbled that the letters can scarcely be read; and sometimes the stones have fallen to pieces. The decay of rock may also be seen in old stone buildings, boulders, and rock cliffs. Have you ever noticed this?

There are several causes for this decay. All rocks have cracks in them (Fig. 6). Usually some of these cracks are so large that they can be plainly seen; but there are

What causes the decay of rock



Fig. 6

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many others so small that they cannot be seen without a magnifying glass. When it rains, the water steals into the cracks, and by eating into and rotting the rock, this water very slowly changes it into a powder.

The water may also freeze in the cracks and pry the stone apart. Perhaps you have seen iron pipes or water pitchers that have been burst by water freezing in them. This shows how much the freezing water expands; it will even break rocks apart. Some of the pieces of rock broken off in this way are very small, others are large (Fig. 6).

Plants help the water to break up the rock. Their hairlike roots push into the cracks and remain there until they grow so large that they pry off pieces of rock.

The earthworms that one often sees on a lawn after a heavy rain also help in crumbling the rock. In order to get food, they take soil into their bodies and bring masses of it to the surface, where it is exposed. The holes they make in the ground also allow water and air to reach the soil and rock beneath.

Rock changes to soil most rapidly near the surface. This is because the rain, roots of plants, and earthworms can reach it there most easily. For this reason the deeper you dig into soil that is formed by the decay of rocks, the less you will find the rock changed (Fig. 7); and no matter where you live, if you dig deep enough, you will come to solid rock.

Sometimes men may dig deep wells without finding rock. But in many places there are only a few inches of soil, and in others there is not enough even to hide the rock.

One reason why the soil is deeper in one place than in another is that some kinds of rock decay much more easily than other kinds. Another reason is that in some places the rain washes the bits away as fast as the rocks crumble.

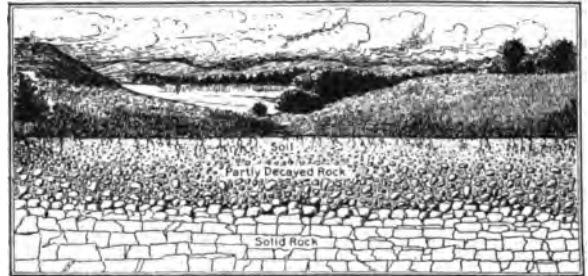


Fig. 7

This may leave the rock quite bare in one place, and make very deep soil in places where the water leaves the broken bits.

Having learned how the soil is made, let us see how the plants make use of it.

An acorn that has been planted in the soil sprouts and sends up a tiny stem. This grows taller and taller, and sends out one branch after another until the little tree becomes a mighty oak. What a lot of material has been used to make such a tree! Where has it all come from?

Some of it has been taken out of the air by the leaves, and some of it has been taken from the soil by the roots. While the stem, branches, and leaves have been growing above ground, the roots have been growing underground, where we cannot see them. These roots have spread out in all directions and have extended deep into the soil, in search of water and mineral matter needed by the tree. Dig up a weed, in order to see how its

How soil is of value to plants

1. The use that plants make of the soil

Why solid rock is found beneath the soil

Why the soil is of different depths

roots have pushed their way in and out through the soil.

Roots have no eyes, to be sure; but they burrow about, and in their own way find what they need. It is not the large or old roots, however, that do this. That is the work of the young roots, many of which are not much larger than hairs.

If you dig up a weed, or any other plant, very carefully, you will see that it has a great many such hairlike roots. It is these that take the materials from the soil, while the older, larger roots merely pass these materials on to the part of the plant above ground. Every tree, every blade of grass, every weed and vegetable, depends upon such tiny roots for its life.

One of the things that roots seek in the soil is water. Plants need water as much as you do; and a plant in a flower-pot will soon wither and die if it is given no water.

Try it, to see for yourself. This is the reason we water our lawns during dry weather in summer. Roots take other substances from the soil, called *plant food*. This plant food is a part of the soil itself, and is as necessary to plants as food is to you. It is carried, in the sap, to all parts of the plant and used to make stems, leaves, flowers, fruit, and seeds, as the blood in your body is used to make bone and flesh. Every blade of grass and every limb of a tree contains some of this plant food that was once a part of the rocks. When a piece of wood is burned, some of this rock material is left behind in the ashes.

Every person, even, has some plant food in his body; your bones and teeth

are partly made of it. But you did not take it directly from the soil; the plants took it for you, and you received it from them in the flour and other foods that you have eaten.

In some places the soil has plenty of plant food in it. To raise good crops in such soil, men have to do nothing beyond plowing, planting, and hoeing. Soil of this kind, with plenty of plant food in it, is said to be rich, or *fertile*.

There is also much soil that has little plant food in it; this is said to be poor, or *sterile*. One reason for sterile soil is that the rock from which the soil has come may contain little plant food. On that account one farm may be much more sterile than another next to it.

Soil that was once fertile may become sterile because plants are always taking some of the plant food out of it. They must do this in order to grow. When weeds and trees fall and decay on the spot where they grew, they pay back what they took away. But if plants are carried away from the spot where they grew, there is danger that fertile soil may be made quite sterile.

Now this often happens. Farmers send away their wheat to make flour, and take their corn, hay, and oats to market. Indeed, they have to do this in order to make a living. Some farmers have sent their crops away year after year, without putting anything back in the ground to take the place of what was carried away. The result is that the soil has become really worn out, or sterile, and the farmers are no longer able to support their families on such land.

2. The value of the hairlike roots

4. The difference between fertile and sterile soil

3. What plants take from the soil

5. How fertile soil may become sterile

The wise farmer takes care to put some plant food back upon the soil, to replace what his crops have taken from it. Then he can continue to raise good crops.

That which he puts back upon the soil is called a *fertilizer*, because it keeps the soil fertile. Fig. 8 shows farmers spreading fertilizer on their land. People in the city also often spread fertilizer on their lawns, to feed the grass and thus make it grow.

Millions of dollars are spent in the United States every year for fertilizers. If this were not done, the crops would not be nearly so valuable. Then the farmers would suffer; and since we all depend upon the products which they raise, we should all suffer. Therefore, what is important to the farmer is important to everyone.

In studying this book it is a good plan to note first the question that is suggested for a section and then read the entire answer without stopping. For example, on p. 1 *Our Need of Food* is the question treated, and the importance of food for everybody is explained on that page. That entire section may well be read without pause, to understand more fully what it is all about. Then a second and even a third more careful reading may follow. When this section has been finished, the next one, telling about our need of clothing and shelter, should be studied in the same way.

1. Show how important food is for everybody. 2. Compare the importance of clothing and shelter with that of food. 3. Prove that nearly all our food comes from the soil. 4. Show that the same thing is true of our clothing. 5. Is the same thing more or less true of

Review
questions



Fig. 8

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the materials for shelter? 6. State some facts about the number of people that work in the soil. 7. What is the soil made of? 8. How has it been made? 9. What causes the decay of rock? 10. Why is solid rock found beneath the soil? 11. Why is the soil of different depths? 12. What use do plants make of the soil? 13. Explain the value of the hairlike roots. 14. What do plants take from the soil? 15. What is the difference between fertile and sterile soil? 16. How may fertile soil become sterile? 17. How can this danger be avoided?

1. Make a list of products that some gardener or farmer near you is raising. 2. Make a list of the many kinds of work that you have seen men doing, and find how many on the list have to do

Suggestions
for study at
home and
out of doors

with food, clothing, and shelter. 3. Find a place where men are digging a ditch or a cellar, and see how the dirt looks below the surface. 4. Find a bowlder, cliff, or old stone wall that is crumbling away. 5. Collect several different kinds of soil.

6. Find out what trees and vegetables grow best near your home. 7. Visit a greenhouse to find out what kind of soil is used there, and what is done to keep it fertile. 8. Make a drawing of the roots of some weed that has been carefully dug up.

2. The Use of the Soil for Agriculture

The slope of land has much to do with its value for farming. If it is very level,

The kind of land suitable for farming

1. The need of slopes to make good farm land

like a floor, the water after a heavy rain will stand upon it in a thin sheet. This will drown the crops and prove unhealthful for both people and animals.

In fields that have no natural slope, special arrangements are often made to

tile, but it is of little worth to the farmer until the water has been drained off.

This is done by digging ditches with sloping bottoms, that allow the water to run away to a lower point. Sometimes the ditches are left open. More often tiles are laid along the bottom of the ditch, forming a kind of pipe, and then the dirt is thrown back. The water finds its way into these pipes and thus disappears. Such drainage is expensive; but the fact that farmers go to such expense shows how very necessary slopes are for farm land.

The kind of slope is an important matter. Land with steep slopes is not well suited to farming. One reason is that it is difficult to do the work of plowing, planting, and harvesting on a steep hillside. But a more important reason is that the rains wash away much of the soil, often leaving only a rough, thin layer of dirt and sometimes even uncov-

ering the rock. The crops, too, are in danger of being washed away by heavy rains. Land with gentle slopes, like that shown in Fig. 9, is, therefore, the better kind for



Fig. 9

Courtesy of U. S. Dept. of Agriculture

carry off the water. Many a farm has such a field — a low, wet place, called a *swamp*. Have you seen one? The soil of such a wet place is generally very fer-

erous.

Land with gentle slopes, like that shown in Fig. 9, is, therefore, the better kind for

farming. The water runs off from it more slowly without washing away the soil or injuring crops; more of the water soaks into the soil, thus helping the growth of the plants; and the farmer can cultivate the ground more easily.

Land of this sort, with slopes so gentle that it is nearly level or slightly rolling,

is called a *plain*. In a hilly or mountainous country such plains are usually the lowland between the hills or mountains. *Valley* is another name given to such lowlands; but that term really includes the slopes on the two sides as well as the low, level plains between them.

In any small mountain valley one is likely to see a stream winding its way downward through the plain, carefully cultivated farms occupying the more level land and extending some distance up the slope on either side, and forests and perhaps fields of snow higher up.

Nearly every valley in the better settled portions of our country has farms in it. Such a valley may not be shut in by mountains or even by high hills; but it is at least shut in by low ridges. Thus there are farms in the Connecticut Valley, in the Ohio Valley, and in the Sacramento Valley. If you are living in a valley, what is its name?

Valleys differ greatly in size. In Fig. 10 you see two rivers flowing into the ocean. On both sides of each is a dotted line running nearly parallel with the river and marked "divide." That means that

water falling on one side of the line flows away in one direction, while that falling on the other side goes in the opposite direction. Thus the rain is parted or divided along that line, just as it is when it falls on a roof.

The line along which the water is parted is called a *divide* or *watershed*, and marks the boundary of the valley on one side. Trace the divides in Fig. 10.

The distance across a valley from one divide to the other may not be more than a half mile, and the stream finding its way along its lowest part may not be a dozen miles long.

Such a valley may be very small and contain no more than a dozen farms. Many valleys, however, are much smaller than that. There may be some near your school so narrow that you could toss a stone across them. See if you can find one; and, if so, try to trace its boundaries.

Other valleys are several miles across, and some are far larger. Indeed, there are some so great that one could not travel their whole length even if one were to spend all day and all night upon a fast train. Of course such valleys contain many thousands of farms.

It is interesting to know that the land is always undergoing change. People sometimes speak of the "everlasting hills," but they are not everlasting. The hills and valleys that you have seen were not always here, and will not remain forever. They have been slowly made. Let us



Fig. 10

3. The importance of valleys for farming

4. The number of farms in a valley

5. How the land is always being changed

see some of the ways in which this has been done.

When it rains slightly, the water soaks into the soil and disappears; but when there is a heavy rain, not all the water can sink into the ground. Some flows away. One little stream, perhaps less than an inch wide, begins at one point; another joins it; soon several of them unite; and after a little while a good-sized brook or creek is formed which in turn flows into a larger river.

Have you not noticed this flowing water in the school yard, in the roads, or on the sides of hills? If you have, you have surely seen that the water did not flow off without taking something with it. It was muddy. This means that soil had become mixed with the water and was being borne away by it. Every heavy rain bears along much soil, cutting little channels, washing out roads, and perhaps even destroying the beds of railways, so that trains must stop running until repairs are made.

During such a rain little channels, or *valleys*, are carved in the soil, leaving tiny *hills* and *ridges* between. No doubt you have seen these formed many times. If not, you can easily make them by pouring water from a sprinkler upon a pile of loose dirt.

There are many heavy rains every year, and in a lifetime their number is very large. During many hundreds of years, then, the water washes away an enormous amount of soil and rock. This soil the streams and rivers carry away to the sea. It is by such very simple means that many valleys have been formed, with the hills between them. It has all been done in much the same

way that the rain water cuts the tiny channels in the soil of the school yard or the sand pile.

While all this has been going on, the land in some regions has been slowly rising or sinking, so as to cause still greater changes. Some of the largest valleys have been caused partly in this way.

How different the surface of the earth must look now from what it did thousands of years ago! No doubt there were hills and valleys in the very beginning; but every year these have been slowly changing, and after many more years they will be very different from what they are now.

1. Explain the importance of slopes for farm land. 2. What kind of slope is wanted? 3. What is meant by *plain* and by *valley*? Why are farms generally located in valleys? 4. Tell about the number of farms that may be found in a single valley. 5. How is the land always being changed?

Review
questions

1. Find some ground near your home that seems nearly level. In what direction does it really slope? 2. Where is the longest slope in your neighborhood? Would you call it a part of a plain? Why? 3. Find out whether or not there are any swamps near you. If so, tell how you could plan to drain one of them. 4. Why should a farmer use tile and fill up a ditch, rather than leave it open? 5. Watch the water carrying off soil after a rain. 6. Show that streets and roads are so built that they have a watershed. Why is this done? 7. If you live on a farm, find out how your father prevents the rain from washing away valuable soil.

Suggestions
for study at
home and out
of doors

3. Winds and Rainfall, and their Effect upon Farming

Plants, as we have seen, must have water just as people and animals must have it; without it they soon wither and die.

How water is obtained for farms

1. The need of water for plants

One purpose of their roots is to search about in the soil for water. Some plants in dry countries protect themselves against drouth by sending their roots down twenty feet or more for moisture.

In the course of a year plants require an enormous amount of water. In most parts of the United States, for example, they cannot thrive with much less than thirty inches of rainfall each year. Thirty inches of rain per year means a layer of water thirty inches deep over the land, if all the rain that fell within twelve months were held. A single acre in that

case would require many carloads of water; and a few farms would call for more than many a lake contains.

There is only one place that could supply so much water, and that is the ocean.

We can see across most lakes and can sail across even the largest in a day or two; but the ocean is far larger. One could sail upon it, in the same direction, for many days without coming to land (Fig. 11). Indeed, the ocean is so large that it surrounds all the land on which people live; no matter in what direction you might travel, if you went far enough, you would come to it.

2. Where so much water comes from

If your home is not near the ocean, you might have to make a journey of one or two, or even three or four, days to reach



Fig. 11

it. It might be necessary to go up hills and across valleys, to pass around lakes, and possibly even to cross great ranges of mountains. You would be surprised to find how much land there is, and how many farms, villages, towns, and cities



Fig. 12

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there are. Find out how long it would take to reach the ocean from your home.

Although there is so much land, there is far more water. In fact, there is nearly three times as much water as land upon the surface of the earth. The ocean is so very large that the great rivers in all parts of the earth pour their waters into it. Their mouths may be thousands of miles apart, yet the sea stretches far enough to reach them all. It seems fortunate that the ocean is so large, when we see what a demand plants make for water, nearly all of which comes from the ocean.

Some of our farms are as much as a thousand miles from the ocean, and it would be an enormous task to supply even one of them with water. How, then, are they all supplied? That is the work of the winds.

We know that winds drive sailing vessels through the water, and that they

turn windmills (Fig. 12). They also carry away smoke, dust, and foul air from crowded cities.

Far more important than all such work is their task of carrying water. The air takes up water from the ocean in the form of *vapor*, which we cannot see, and the winds bear it about, sometimes a few miles, sometimes hundreds and even thousands of miles. The winds carry the vapor in all directions, and often hold it for many days before letting it fall.

It requires an enormous amount of water to keep the soil damp, the lakes full, and the rivers flowing; far, far more is needed than all the wagons, boats, and trains in the whole world could haul. But the winds do this work very easily, and much of the time very quietly. Thus it is by the help of the winds that the rocks are made wet and changed to soil, that plants are able to grow, and that animals and people are furnished with water to drink.

What causes the air to move, and do such mighty work? Heat has much to do with it. If you watch 4. What causes the winds smoke in a room where there is a lighted lamp, you will see that it moves toward the lamp, and then, being heated, rises above it (Fig. 13). In the same manner the air in a room moves toward a hot stove, and then, being heated, rises above it.

The reason for such movement of the air is, first, that air is made lighter when it is warmed; and second, that the colder air all around, being heavier, crowds in and pushes the warm, lighter air upward. The warm air is forced upward just as a light cork that is sunk in water is forced to the surface by the heavier water all about it.

The movements of the atmosphere that surrounds the earth are quite like those of the air of the heated room. If the atmosphere is warmed in one place, cool, heavier air pushes in and forces it up. That causes the air to move, first toward the warmer place, and then upward. The air moving along on the surface of the earth is called *wind*.

For example, people on the seashore often enjoy a cool sea breeze on hot summer days. This is because the hot sun warms the land more than the water; then the cooler air from over the sea blows in toward this warmer place.

Such differences in the warmth of the air are the main cause of winds everywhere. Winds that blow even hundreds of miles in one direction are caused in much the same way as the very gentle draughts about a lamp or a stove. What wonderful results follow from the fact that there are always some places warmer than others!

Water is always rising from the surface of the ocean. In fact, enough water to fill thousands and thousands of barrels is leaving the ocean every second and floating away in the atmosphere; and at all times there is enough water in the air to fill many large lakes. What causes so much water to rise into the air? And why can we not see it there?

You have no doubt watched a kettle of water boil, and have seen that "steam" rises from it. Perhaps you know, too, that if it boils long enough, all the water will boil away, leaving the kettle quite dry. All the water in the kettle has then passed into the air, where it cannot be seen.

The reason for this is that heat has changed the water, which is a *liquid*, into a *gas*, which, like air, has no color and cannot be seen. This gas is called *water vapor*, and is so light that it



Fig. 13

floats about in the air. That explains how the air is able to "take up" water and carry it about without our being able to see it.

It is not necessary, however, to boil water in order to change it to vapor. All over the earth, wherever there is water, vapor is rising into the air every minute. You can prove this for yourself by noticing that muddy streets and wet clothes soon become dry, even in winter. Or you can place a shallow pan of water on a table and observe, after some days, how much of it has gone.

People say that the water has *evaporated*, which means simply that it has changed to vapor. It is in this way that so vast an amount of water is always rising from the ocean into the atmosphere.

5. How the air
is able to take
up water

Perhaps after many days, and after traveling hundreds of miles from the ocean, the air gives back some of its water vapor in the form of rain. What causes it to act in this manner?

6. What causes the winds to drop their water

Have you ever noticed a glass, or a pitcher of ice water, "sweat" on a hot summer day? The water that collects on the outside of a glass of cold water has not leaked through, for there are no holes in the glass. What has really happened is that the air around the cold glass has been cooled by it, and this has caused the vapor in the air to collect in drops on the cold surface (Fig. 14). Drops would gather, or *condense*, just the same on any cold glass, even if no water were in it.

The window panes of a kitchen are often covered with drops of water from vapor, which rises from the kettles and is condensed in the same way as when you breathe against a cold window pane.

From these facts you see that when air loaded with vapor is cooled, some of the vapor is changed back to water. Heat will cause water to change into vapor, and cold will change it back again.

There are several ways in which winds may be cooled. When air is forced upward in going over a mountain or a highland, it expands as it rises into the rarer air, and in this expansion it is cooled. This proves clearly that mountains are an important help in causing rain. Indeed, the mountains are usually the rainiest parts of any country.

Vapor may also be condensed into clouds and rain when air is forced upward over a plain. This frequently happens in summer when "bad spells" of weather pass eastward over our country. On hot summer days, the warm air near the earth often becomes so light that it is pushed high above the earth, forming huge billowy clouds. The vapor of these clouds is condensed into raindrops. These are the summer thunder-showers, which often come on hot afternoons. Such days are usually "muggy"; muggy air is really air with much water vapor in it.

There are several different forms that the vapor in the air takes when it changes to water. For example, when

7. The forms into which vapor is condensed



Fig. 14

you breathe into the air on a cold, frosty morning, your breath forms a little cloud, or *fog*. The cold air has made the vapor in your breath change to tiny drops of water, so small that you cannot see a single one, though hundreds of them together make a thin mist. You have, no doubt, seen fogs in valleys, on lakes, or over the ocean. These are always made of tiny drops of water condensed from vapor in the air.

Most *clouds* are also made of tiny fog and mist particles. These particles, as described above, are caused by the cooling of the air. When climbing a mountain one may pass through such a cloud, and it then seems to be no more than a fog or a mist. Viewed from below, however, it is seen to be a cloud; and if you go high enough, you may even climb above it. Then,



Fig. 15

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looking down on its upper surface, you can see clearly that it is a cloud (Fig. 15).

The *raindrop*, which falls from the clouds, of course is another form of condensed vapor. Raindrops begin as tiny mist or fog particles, but as they grow in size they become so heavy that they can no longer float. They must then fall to the earth.

We have learned that water may be either a liquid or a gas. We know, too, that it may also be a solid, for ice is the solid form of water. When vapor condenses at a temperature below 32° , or the *freezing point*, it takes the solid form. Then either *snow* or *hail* is formed instead of rain. Have you ever examined the

beautiful snow *crystals*, or *snowflakes* as we call them (Fig. 16)?

Drops of water often collect at night on the cold ground, on grass, and on leaves. This we call *dew*. The dew gathers be-

cause the ground and plants cool quickly after the sun sets. These in turn chill the air next to them, until some of the vapor in it changes to liquid water. If the temperature is below the freezing point, *frost* is



Fig. 16

formed instead of dew.

The farmer watches the winds even more closely than most people do; for the direction from which they blow tells him much about the kind of weather to expect.

8. Meaning of weather records and how to keep one

You would find it interesting to observe this for yourself. If you should keep a record every day of the direction of the wind and the kind of weather it brings, you would soon learn which of your winds cause rain, and which cause fair weather. You may also notice the clouds, and look at the thermometer each day, to see what the temperature is. By this means you can learn something about the weather near your home. A record of this kind, which is called a *weather record*, may be kept somewhat as follows:

Date	Time of Day	Direction of Wind	Kind of Weather	Temperature
March 10	8:00 A.M.	Southeast	Cloudy	55°
March 11	6:00 P.M.	Calm	Rain	60°

In preparing for recitation it is not necessary to try to remember the *exact* words of the book. In fact, it is much better to tell what has been learned in one's own words.

It is a good plan to stop now and then to think over what has been read, and for this purpose some stopping places are better than others. Probably the best place in every page or two is found at the end of the answer to each question that is suggested in the heading at the side of

the page. At this point, one can look back over what one has just read, or think it through without looking at the book. Occasionally one should review several pages at a time.

1. In what ways can you prove that plants need water? 2. Where must the water come from? 3. How does the water reach the land? 4. What causes wind? 5. How is the air able to take up water? 6. What causes the winds to drop their water? 7. Into what forms is vapor condensed? 8. What is meant by a weather record, and how is one kept?

1. What might be the effect if there were much more land and much less ocean? 2. In what direction would you need to go to reach the ocean at the nearest point, and how far would you have to travel? 3. Why does smoke go up chimneys? 4. Make a drawing showing how a hot stove causes a movement, or *circulation*, of air in a room. 5. How many examples of evaporation can you observe about you? 6. What examples of the condensing of vapor can you find? 7. What winds usually bring you rain? 8. Where have they probably obtained their vapor?

Review
questions

Suggestions
for extra
work

II. TWO OTHER GREAT OCCUPATIONS — MANUFACTURING AND TRADE

In the cold country far to the north of us live the Eskimos. When they want anything they do not think of going to a store to buy it, for such a thing as a store is unknown to them. They have no money, because they have no use for it; there is nothing that they can buy with it. They have never seen an

automobile or a railroad train or a city; nor do they know anything about post offices or the telephone or the telegraph.

1. The independence of the Eskimos

How, then, do they live, and how can they supply their wants? The answer is very simple. Each man makes or finds what he has. If he needs a house, he builds it. If he wants food, he catches

The independence of some people in supplying their wants

a fish or kills a seal. If he needs clothing, he takes a sealskin and makes it. If he wishes to have a sledge, or a boat, he makes that. Thus, he depends upon himself for his food, clothing, and shelter.

Not many hundred years ago there were no stores in our country.

2. The independence of our early settlers
 Then, like the Eskimo, every man had to depend largely or wholly upon himself for his food, clothing, and shelter.

Our first white settlers came from Europe, and made their homes along our

a. Location of homes

eastern coast because that was the first land they came to after crossing the Atlantic Ocean. Soon people called *pioneers* began to push into the wild country farther west. Often several families settled together, many miles away from other people; but sometimes a family went off alone and made a home ten or fifteen miles from the nearest neighbor. Most of the United States was first settled by such families as these.

Usually the first thing they had to do was to cut down trees in order to make room for a house and garden.

b. Kind of house and furniture

The house was built of logs, and mud was used to stop up the cracks (Fig. 17). The house often had no floor except the earth, and only a single room. The beds were made of posts driven into the ground and joined together with cross-pieces. The chairs were three-legged stools, and the table was part of a log supported upon four legs.

Wheat was raised for bread; and corn, which often took the place of wheat, was made into corn bread. Tea was often made from roots found in the forest, and most of the meat was obtained by shooting wild game.

c. Their food and clothing



Fig. 17

Many families after a time kept sheep, and the wool was made into yarn, blankets, and cloth. If a boy needed a new suit of clothes, his mother wove the cloth, cut it out, and sewed the parts together. Such a suit was called *homespun*. Or if there were no sheep, the clothing was sometimes made out of the skins of animals. Many boys wore trousers made from deerskin, and used moccasins for shoes when they did not go barefoot.

There were no schools, and whatever the children learned from books was generally taught by the mother.

d. Their schools

There was little time for reading during the day, and the only light at night was that which came from the burning wood in the great fireplace. Ink was made from some colored root, such as

brier root, and pens were cut from the quills of fowls. There were few books, however, and there was little time for reading or writing.

As a rule, each man raised more of some things, such as wool, wheat, or hogs,

Our country was settled so rapidly that each family soon had neighbors. A number of people would build their houses near together, so as to form a little village, and one of them would start a general store.

How people came to depend more upon one another



Fig. 18

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than his own family needed. There were other articles that he had to buy, such as powder, sugar, salt, and tea.

e. Necessary journeys

Sometimes a pioneer stayed at home and bought nothing, or he waited until some trader came along and then exchanged skins for the things that he wanted. Oftener, however, he made a journey, once or twice a year, to the nearest town, which was perhaps a hundred miles distant. He then took with him the products of the farm and exchanged them for such articles as he needed.

These trips had to be few, not only on account of the distance, but because the roads were rough and muddy. It might take several days to haul a load of grain to town and bring back the things he wanted.

other spent part of his time at carpentry work for his neighbors. A third built a grist-mill (Fig. 18), and ground grain into flour. A fourth made shoes a part of the time, or served as a doctor, or taught school, along with other work.

A few of the men spent all their time at one kind of work. For example, the blacksmith was kept busy shoeing horses and repairing wagons, while the storekeeper did nothing but buy and sell goods. Now and then the storekeeper would make trips to the nearest city, to buy such supplies as he thought his neighbors would require, such as matches, boots, shovels, axes, cloth, and drugs. These he would keep in his store for sale. Sometimes he received money for them, but more often he took eggs, meat, wool, and grain for his pay. These he sent to the nearest large town for sale.

In this way it was no longer necessary for each farmer himself to go to the distant town or city, for he could usually get what he wanted from the store. He could also sell his products to the storekeeper, and with the money received pay the blacksmith, or doctor, or teacher. Thus each man came to do fewer things for himself, and to depend more and more upon others for many things.

Each year more people came to this country, and the villages grew to be towns and cities, with many mills and factories. Then people in our country began to live as we now do. That is, not a few men only, but *every* man began to do only one, or, at most, very few kinds of work.

At present some men do nothing but farm; others, nothing but dig coal or iron ore from the mines. Some spend all their time at fishing; others spend it in making cloth, or needles, or shoes. The work that one man does may be of a very simple kind. For example, he may only drive a team, or make screws, or saw shingles, or tie up sacks of flour.

With the money received for such work he buys the many things he wants. These articles have been made by hundreds, perhaps thousands, of other people. Think how many men have had a share in the work of preparing the food that you have on your table each day, or the shoes that you wear, or the house in which you live! How different our ways are from those of the pioneers!

As more people settled in one place, more kinds of work were undertaken; but two of the most common kinds were *manufacturing* and storekeeping or *trade*.

The factories at first were small, employing possibly less than a dozen men. But in many cities there are now factories that employ thousands of workers. Fig. 19 shows such a factory. Can you tell about the kind of manufacturing carried on in some factory near you, and the number of men employed?

The stores, too, were at first small, having only one or two clerks. Many of these also have grown to enormous size, and

How manufacturing and trade have helped to develop cities



Courtesy of the Packard Automobile Co.

Fig. 19

employ hundreds of men and women. Our cities owe their growth largely to these two occupations, manufacturing and trade.

When studying the lesson it is important to know that the sentences in the text are not all to be remembered alike,

for they are not all of the same value. Neither are the paragraphs all of the same value, nor the pages. On the contrary, in any text there are always some sentences, paragraphs, and pages that are far more important than others, and one of the principal things to do in studying a lesson is to discover what the most important parts are. For example, between pp. 16 and 19 several questions are treated, and the most important one is that on p. 19, telling about the *extent of our dependence upon one another now*. In that section, also, there are two sentences that are of special value. One is the statement that "Not a few men only, but *every* man began to do only one, or, at most, very few kinds of work." The four sentences making the next paragraph merely illustrate this statement. The first sentence in the next paragraph, beginning with "With the money received for such work," is the most important one there. Those that follow merely explain it. Thus the principal thoughts in this section are contained in these two sentences.

In all study of this text it is best to find the leading question in a number of

pages and the one or two chief statements made in answer to each question. It is much more interesting to study in this way, and one remembers better what one reads. Try this plan in your next lesson.

1. In what ways must the Eskimo meet his own wants? 2. Describe the habits of our pioneers in the location of their homes. 3. What kind of houses and furniture did they have? 4. How did they get food and clothing? 5. Describe their schools. 6. Describe the journeys they sometimes had to make. 7. Explain how people came to depend more upon one another. 8. To what extent are we dependent upon one another now? 9. How have manufacturing and trade helped to develop cities?

1. What are some of the attractions that you see in pioneer life like that described in the text? 2. What articles would you expect to find in a general store in a village or in the country? 3. How are department stores in cities like such general stores? 4. Write a story describing an early pioneer's journey to the nearest large town.

Review
questions

Suggestions
for extra
work

III. A FOURTH GREAT OCCUPATION — TRANSPORTATION

There is a fourth great occupation. If you will make a list of the kinds of food you eat, you will find that only a few of them are produced near you. Try it, to see. And some of them may have come a very long distance. The flour for your bread may have come from Minnesota or Kansas or New York; your meat from states still farther west;

your sugar from Cuba; and your salt from Michigan. Likewise the dishes on your table, the knives, forks, and spoons, and even the table itself, with the chairs about it, were probably hauled hundreds of miles before reaching you.

Most of your clothing has come just as far. The cotton of which your dress or shirt is made was probably grown in the South; the wool for your woolen

The need of
transportation
of goods and
of people

clothing, in Ohio or Montana; and the linen for your collars or handkerchiefs in Ireland.

Can you suggest where the materials for building your home were produced: the brick; the iron and the lead pipes; the lumber, nails, tin, sand, and many other things? The coal, also, for heating your house? Were any of these materials found near you? How many of them probably had to be brought a long distance?

It is plain that materials for food, clothing, and shelter are being carried in all directions all the time. Nearly every day every farmer is hauling some things to his farm or taking others away. Every factory is receiving quantities of raw materials and shipping away finished products. Every store is constantly receiving and sending out supplies. People, too, hundreds of thousands of them, have to be carried from place to place every day.

The work of hauling — or *transportation* as it is called — is, therefore, a fourth great occupation. Millions of persons are engaged in it, just as other millions are engaged in farming, manufacturing, and trade.

Any country that has not advanced far usually has very poor roads. Often **The first kind of roads** they are only paths that have been made by animals or men and are hardly more than a foot wide.

The Indians in our country had only narrow paths, or *trails*, for roads. They often used the trails made by the buffalo. Wagons could not be drawn over these, and goods could be carried only on the backs of men or of animals. A number of horses carrying packs formed a *pack train*; these may still be seen in some places (Fig. 20).

The pioneers at first had only trails, and one of their hardest tasks was to cut roads through the dense forests. Trees had to be cut down, stumps and stones removed, steep places leveled, and swampy places filled in. Streams had to be crossed



Fig. 20

by wading or *fording* them in places where the water was shallow (Fig. 21). This was often difficult and even dangerous, especially when the streams were swollen after heavy rains. Bridges were built as soon as the people were able to do so.

As long as each man depended largely upon himself for the things that he needed, there was not much hauling, and it made little difference how poor the roads were. But when each person did only one kind of work and relied upon others

Our progress
in road
building

for supplying his wants, good roads or *highways* came to be of great importance. Our dependence upon trucks in recent years for all kinds of hauling has made

muddy for travel. Do you know any such? Every year, however, the number of smooth, hard, and level roads is greatly increasing (Fig. 23).

Perhaps you have seen some road-building, and can describe how it is done. The most common kind of pavement is called *macadam*, after the name of the Scotchman who invented it. It consists of broken stones several inches deep covered over with fine bits of rock; all this material is pressed down very hard by a heavy steam roller. The objection to it is that it wears out too rapidly. Better kinds are now gradually taking its place, in which asphalt or brick or concrete are used.

What kinds of pavement

good roads still more necessary, for such machines make poor speed on bad roads.

It is not surprising, then, that our highways have been rapidly improving. There

are found in your neighborhood, and where is the best section?

Rivers are often a fine substitute for highways. When the pioneers were set-



Fig. 21

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Fig. 22

© Brown Bros.



Fig. 23

are still many wretched ones (Fig. 22), in both city and country, roads that are very rough, or steep in places, or too

tling in the Mississippi Basin it was the custom to float their goods down the Ohio and the Mississippi rivers to New Orleans

for sale. In many parts of our country the rivers were at that time the best and almost the only routes of travel and transportation.

A broad, deep river may be one of the best highways in the world. To be sure, no wagons can be drawn upon it, but boats may travel upon it with ease. A large steamboat can carry as much freight as scores of wagons or railroad cars, and many boats can go up and down it at the same time.

River navigation is, therefore, an important kind of transportation. Before the time of railways — which is no longer ago than when your great-grandfathers were



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Fig. 24. — A Mississippi River steamer

boys — boats were used for carrying all sorts of articles. In many countries they are still almost the only means of hauling goods long distances, and even in the more advanced countries they are one of the cheapest means of transportation (Fig. 24).

If we take a journey from the source of a river to its lower end or mouth, we shall see how large a part of it is useless for navigation.

Difficulties in the way of using rivers for transportation

1. Why the upper course of many rivers is of no use for this purpose

It may have its beginning or source in a small spring in the mountains or in the mountain snows, where it is so narrow that one can easily step across it.

We put a toy boat upon the water and it floats along quietly for a time. Then,



Fig. 25

coming to a swift part of the current, called a *rapid*, it is whirled along roughly and upset. We rescue it and set it right again, but soon it comes to a place where the water falls many feet from the top of a ledge (Fig. 25). In tumbling over this *waterfall* the boat is again upset and dashed against the rocks.

As the water rushes along, beating itself into foam, it is here and there joined

The current is not so swift now, although there are still some rapids and falls; and instead of rocky cliffs, the banks are low. In fact, in some places these are not much higher than the water. Here and there a tributary, itself almost a river, pours its flood into our stream.

It has now been many hours since this water left the mountains; and it has become so deep that we can drift along easily in a rowboat, watching the men at work in the fields, and the villages that we pass (Fig. 26).

At one point, however, the current grows swifter, and finally the water tumbles in a great fall. We must leave the river at this point and pass around the fall. Here is a large city with many mills and factories. From this point on, the stream is so broad and deep that large steamboats can travel upon it; it has now become a great river and valuable for navigation.

Above this point, however,



Fig. 26

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by other branches or *tributaries*, some very small, others nearly as large as the brook itself. Thus the stream gradually grows broader and deeper.

Often the water must rush around or leap over large boulders that lie in its path; and often it falls directly downward for many feet, with a roar. At last the river leaves the mountains and flows in a broad valley through a hilly country. Some of the slopes are steep and covered with forests; others, more gentle, are cleared of trees and dotted with farms.

on account of the shallow water, the swift current, and the rapids and falls, it is of no use for transportation. Most rivers in their upper courses suffer from one or more of these difficulties.

There are other difficulties besides falls in the way of transportation along the rivers. In time of floods, caused by heavy rains or the melting of snow, rivers often break through their banks and change their courses. Then river vessels that sink many feet in the water

2. Difficulties of transportation in the lower course of rivers

have great difficulty in finding a safe route. There is another serious difficulty due to the load of mud in river water. Rivers, as you have already learned (p. 10), usually carry quantities of soil taken from the valleys through which they flow. They also grind up rock by rolling stones about in the stream bed and carry off the rock bits in the current. All such loose material is called *sediment*, and the amount of it in any river is generally large. In times of flood it is enormous. Why should it be larger at such times than at others?

How great the quantity may be is suggested by the amount of land that the rivers build with a small part of it. When the rivers overflow their banks and spread out over the surrounding country, their slowly moving waters drop some of this sediment and form a thin layer of mud. Each flood adds another layer, until after many years land is built above the usual level of the river. Such land is generally a level plain; and, since it is made by river floods, it is called a *flood plain*. In the same manner plains are built at the mouths of many rivers; these are called *deltas*, because their shape of a triangle resembles the shape of a Greek letter Δ , called *delta* (Fig. 27). Sometimes such plains are many miles in width.

Much of the river sediment, however, is dropped in unexpected places. As the current shifts about, sand bars may be formed from the sediment, so as to block the old river channel here and there. Then the boats run aground, or lose much time in picking out a safer route. On account of such difficulties, transportation even on the lower courses of rivers calls for much care and expense.

Fig. 28 represents a river system; that is, a main river and all the smaller streams or tributaries that flow into it.

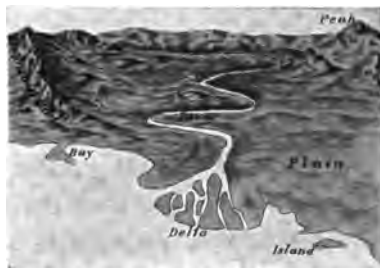


Fig. 27



Fig. 28

A large river such as this one may have dozens of tributaries, bringing together the rain that falls in places even hundreds of miles apart. Yet while there are many streams, possibly only the lower course of the main one would be of use for transportation. Its upper course and its many tributaries would be too shallow for boats, or their rapids and falls would prevent their use. What difficulties might boats have to meet even at the delta of this river?

Although it is only about 100 years since the first railroads were built, it would be difficult to imagine how we could do without them now. Many of the things we use must be brought 1,000

How small a part of any river system is valuable for transportation

miles or more overland. Look about in a grocery or hardware store and make a list of articles that have probably been hauled at least that distance. If there is a factory near you, find how far away some of its products are sent.

Why railroads have largely taken the place of wagon roads and rivers for transportation

Wagon roads cannot well be used for such long-distance hauling; it is slow for all things and altogether too slow for many. For example, fresh fruit, vegetables, and meat could not be shipped so far by wagon roads; nor would people be satisfied to send their mail or to travel in that way. Transportation by river is somewhat faster; but it is still very slow compared with that by rail. Besides, rivers do not run in the right direction for much of the necessary traffic. For such reasons, railroads have largely taken the place of our rivers for all kinds of transportation, and they have taken the place of our wagon roads for most long-distance hauling.

Rivers, wagon roads, and railroads generally follow the valleys. Can you explain why the rivers do so? Can you give some examples of wagon roads and railways that keep to the valleys?

Why rivers, roads, and railways follow the valleys

The reason for this is that the bottoms of valleys usually have a gentle slope, and it is easier to build roads and travel over such land than up and down across hills. On that account, when white men first came to this country and settled among the hills, they built their roads in the valleys; and the same thing is still done.

Trains cannot be drawn up steep slopes; and therefore the railroads must either

cut through the hills or follow the valleys. The latter is much the cheaper plan, so that in a hilly country railroads wind in and out, often making sharp curves in order to keep to the valleys.

In studying a lesson it is best not to spend all your time with your book in hand. After carefully reading the text through two or three times, it is best to select some topic that you think would prove interesting to your mother, or to some of your friends, or that they could tell you more about. Then, at some time when the others present have nothing special to talk about, bring up this topic. Tell what you have read, and ask some questions about it. Talking over a part of a lesson in such a way is one of the very best ways of studying it.

About how to study

1. Show how great is the need of transportation of goods and people. 2. Describe the roads of early times. 3. What progress have we made in road-building? Tell about the different kinds of pavement. 4. Explain the value of rivers for transportation. 5. Why is the upper course of many rivers of little use for this purpose? 6. What difficulties in the way of transportation are met in the lower courses of rivers? 7. What is a river system? Show why only a small part of any river system is of value for transportation. 8. Why have our railroads largely taken the place of our wagon roads and rivers for transportation? 9. What is meant by the source of a river? Rapids? Tributaries? Falls? Flood plains? Deltas?

Review questions

1. The last syllable in the names of many towns and cities is *ford*, as, for

example, Hartford, Stamford, and Rockford. What does this suggest to you?

Suggestions for extra work 2. How can good roads and waterways help to prevent famines? 3. What is meant by the "right bank" of a river? The "left bank?" River bed? River channel? River basin? 4. Why are the rocks in river beds generally so smooth and

round? 5. Find a spring. Why are its waters always cool? 6. Find out some of the ways in which rivers are improved for transportation. 7. Make a collection of pictures of rivers, and state as many facts as you can about them. 8. Make a drawing of a river, showing its source, mouth, tributaries, and flood plains.

IV. GOVERNMENT

You have studied about the four greatest occupations in the world. But there are many hard-working people who are not engaged in farming, manufacturing, trade, or transportation. Your teacher is an example. Can you give several other examples?

It is plain that there are many other kinds of employment beside these four. One of the most important of the others is *government*. There must be laws about health, the care of streets, the education of children, the raising of taxes, and scores of other matters; and persons must be chosen to make such laws. These laws must also be enforced, which calls for many more men, such, for example, as policemen, firemen, judges, and a host of others. Thus there are hundreds of thousands of men and women in the United States who give all their time to the work of carrying on our government.

Many of these people have to be elected by vote of the people to the offices they hold. Do you know what is meant by voting and by elections?

How people are elected to office

Suppose that all the members of your class, or of your school, wished to form a

club, and to choose one of your number president. How would you go about it? Probably the names of two or three children who seemed best fitted for the place would first be suggested. Then each of you would write the name of the one you preferred upon a slip of paper, and drop it into a box. After that, all the slips, or *votes*, would be counted, and the boy or girl who received the greatest number of votes would be elected.

In such a case you would be voting, and having an election at school. When you dropped the name of the one you preferred into the box, you cast a *vote*; and the *election* was nothing more than the choice of some one for the position. Quite possibly some of you would become just as much interested in such an election as men do in their elections.

Men hold their elections in much the same way. Ask your father and mother to tell you exactly how they vote.

People hold elections and vote on many sorts of questions, but usually when one speaks of voting and of elections one means the choice of officers for our government.

Matters that elections decide

We do not hold elections to decide how a farmer shall manage his farm, for it is

best that he should do that about as he pleases. He builds fences, plants certain crops, and sells his grain or feeds it to his stock, as seems to him best. So, also, the miller builds a large or a small mill, uses old or new machinery, grinds much

The schools, likewise, are not usually owned by any one person, and are of great interest to everybody. So questions about the schools are also voted upon at elections.

What shall be done with thieves and disorderly persons? This is another ques-

tion of great interest to everybody. Laws must be made to control such people, and officers must be selected to carry out such laws. There are many other questions that interest large numbers of people. Can you name some of them? Ask your father or mother to tell you what will be some of the questions to be voted on at the next election.

Elections, therefore, deal with matters of general interest. They provide for laws on such matters, and for the selection of officers to enforce them.

Some of the matters that are voted on at elections



Fig. 29. — The legislature of Illinois

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or little corn, and makes repairs as he chooses. In each of these cases one man owns and uses the property.

There are many things, however, that no one person owns, and in which a large number of people are about equally interested. This is true, for instance, of roads. Many people drive or walk over them, but no one person owns them. The people together have to decide, or vote, where and how they shall be built and repaired, and who shall do the work. That is, they hold elections to make laws about the roads, and choose officers to carry out such laws.

concern only those persons who live in a small section, as in a small town or village. For instance, the kind of streets that you shall have, and the men who shall take care of them, are questions of no special interest to people in other towns or cities, but they interest all the voters in your section.

It is also very important that you have a good school building, with good teachers. People living at a distance have little interest in *your* school, but those who live near you are very much interested in it. The people to vote on such a question,

Questions to be voted upon by small groups of people

therefore, are those who have a special interest in it.

Thus there are many matters that are of chief interest to the persons living in one neighborhood. They are called *local* questions, and are voted upon only by the few voters in that section. Ask someone to tell you of other local questions.

There are some matters that are of interest to the people in a much larger area. For example, a railway company might charge too much for hauling passengers and freight. In such a case, laws may be needed, forcing them to charge lower rates. Since a railway may be hundreds of miles long, the people of a single town or city could do very little with such a company. In that case it would be necessary for men living perhaps hundreds of miles apart to unite in some way to make laws.

Again, it is important that there be buildings in which blind people may be cared for; others in which the deaf and dumb may be educated; and still others in which insane people may be kept. There must also be strong prisons where criminals may be sent. There are not many such persons in any one small district, and it would prove very expensive and difficult to take proper care of only a few of each kind. Therefore, all the people in a large area, called a *state*, unite to make proper laws and provide buildings and officers for the care of such people. What is the name of your state?

The voters of a state cannot, of course, all come together at one place to discuss such matters. Even if all could make the journey at a time agreed upon, there would be so many that it would not be

possible for all to hear those who spoke, and little business could be done. Besides, new laws are needed every year, and the voters would have to spend too much time on such work.

For these reasons it is the custom for one man to be elected to *represent* many others in the making of laws. Where there are great numbers of people, he may represent many thousands, and vote in place of them all. Suppose, for instance, that there are a million persons living in one state, and that one man is



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Fig. 30. — The capitol at Springfield in Illinois

elected to represent every ten thousand. One hundred such men would then be chosen, and it would be their duty to come together and make laws for the whole million.

Such men, being elected to represent others, are called *representatives*; and be-

cause they *legislate* (which means "make laws"), the whole body is called the *legislature* (Fig. 29).

The city where the legislature meets is called the *capital* (which means "head city") of the state. The capital is often located near the center of the state, and it usually has a fine, large building, called the *state capitol* (Fig. 30). It is here that the representatives hold their meetings.

The chief officer of the state, who is elected to see that the state laws are carried out, or *enforced*, is called the *governor*. Who is your governor? He is elected by voters in *all* parts of the state, while each representative is elected by a small section of the state. There are also other state officers, such as a state treasurer, a state superintendent of schools, and judges. Some of these officers are elected by the people; others are appointed by the governor.

In cities, laws are made through representatives, just as in states, and for the same reasons. The representatives chosen to make the laws in cities are usually called *aldermen*; and the highest officer, elected to carry out, or *execute*, the laws is called the *mayor*. All these officers are chosen by the voters at elections. If your home is in a city, learn the name of your mayor and that of the alderman from your neighborhood. Find out what some of their duties are.

The building in which these representatives meet, and in which the mayor has his office, is called the *city hall*. While the city is governed in some matters by its own laws and officers, like any small town, it also forms part of the state and elects representatives to the legislature.

In our country there are forty-eight states, and there are some questions that no one state can decide alone, because the others are equally interested in them. For instance, it would be a great hindrance to trade and travel if each state made its own money, for each state might then have different coins. In that case, every time a traveler passed from one state to another, he would be obliged to exchange his money for a new kind.

Again, in case of war, the country would be weak if each state acted alone. Perhaps you can give some of the reasons why. Mail is another matter that concerns all the states. There are many others besides. Can you mention some of them?

So it is clear that we need a *United States government* as well as state, city, and town governments. The reason for calling it the United States government is also plain, for the *states* have really *united*, in order to have one central government for many important matters.

If the people in a single city or state cannot meet in a body to make laws, certainly the people of the entire United States cannot do so. Therefore, representatives are elected, and sent to one place, from all the states of the Union. Here they consider questions of interest to the whole nation.

The place where they meet is Washington, and this city is called, on that account, the *capital of the United States*, or the *national capital*. At Washington there is a magnificent capitol in which the meetings are held (Fig. 77). There are many other fine government buildings there also.

Questions that concern the people of the United States

How laws are made and officers selected for cities

How laws are made and officers chosen for the United States

The representatives from the forty-eight states of the Union form what is known as *Congress*. This corresponds to the legislatures of the state, for the congressmen make laws for the nation, as the legislators do for the state. The members of Congress are called *senators* and *representatives*.

The chief *executive officer* of the United States, corresponding to the mayor of a city and the governor of a state, is called the *president*. He lives in Washington, and his residence is called the *executive mansion*, or White House, since it is white in color (Fig. 31). Who is now President of the United States? Who was the first President?

Besides these officers, who are elected by the people, there are a great many others who are appointed by the President to carry on the work of government. Many live in Washington, but some, such as postmasters, live in other places.

We have seen that our representatives and other officers are elected by votes that are cast for them. Because the people thus have the power to make their own laws, our government is called a *democracy*. The first part of this word means "people" and the last part "government," so that the whole word means "government by the people." Because the people do not really make the laws themselves, but elect representatives to do this for them, ours is often called a *representative government*, or a *republic*.

1. Show that the work of government

is an important occupation. 2. How are people elected to office? 3. What kind of questions do elections decide? 4. Give examples of questions that are voted upon by small groups of people. 5. Of questions that concern

Review
questions



Fig. 31

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This view of the White House was taken from an airplane.

the people of a whole state. 6. How are laws made for a whole state, and who are some of the officers elected for the state? 7. How are laws made for cities, and who are some of the officers elected for cities? 8. Give examples of questions that concern the people of the United States. 9. How are laws made, and who are some of the officers chosen, for the United States? 10. Why is our government called a democracy? Why a republic?

1. Name some officers that you know about, and find out whether they represent the local, state, or the national government. 2. What officers look after your school, and how are they chosen? 3. What is the capital of your state, and where is it? 4. In what respect are the town hall, city hall, state capitol, and United States capitol alike in their use? 5. Why should the capital of a state be near the center of the state, if possible? 6. What does U. S. stand for?

Suggestions
for extra
work

V. MAPS

It is often important to represent a country upon a *map*, so as to tell at a glance what its shape is, and where its mountains, rivers, and cities are. Such

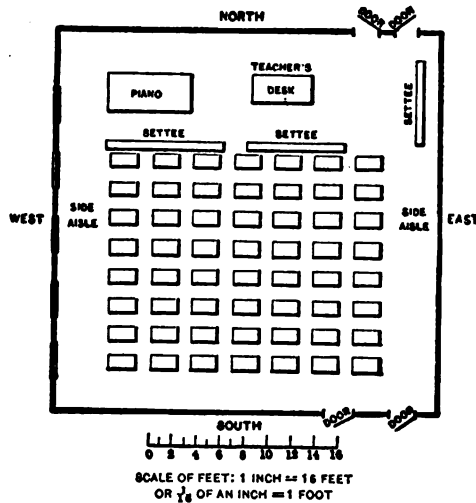


Fig. 32

a drawing can be made of any place, no matter how large or small it may be.

Suppose, for instance, we desire to make a map, or drawing, of a schoolroom.

How a map of a schoolroom can be drawn

The room we have chosen is thirty-two feet long and thirty-two feet wide. It would not be easy to find a piece of paper as large as that; but it is not necessary to have so large a piece in order to make the drawing. A small piece will do just as well, if we let one inch on the paper stand for several feet in the room.

In this case let one inch stand for sixteen feet. Since the room is thirty-two feet on each side, the drawing will be just two inches long and two inches wide. To place the desks and aisles properly, we shall need to use a ruler with the inches divided into sixteenths; for one foot in

the room represents one sixteenth of an inch on the ruler.

The ends of the room are on the north and south, and the sides on the east and west. The teacher's desk is three and one half feet in front of the north wall. There is a row of desks about four feet from the west wall. The desks are just two feet long, with eight in a row one and one fourth feet apart. There are seven rows, and the aisles between them are each one and one fourth feet wide. The piano is on the west side of the teacher's desk.

Here is a map of the schoolroom (Fig. 32). Measure each part to see whether it has been drawn correctly, using a foot rule that shows the sixteenth part of an inch. How large is the teacher's desk? The piano?

When a person draws in this way, letting a certain distance on the paper stand for a greater distance, he is said to use a *scale*, or to make a map *according to a scale*. In the schoolroom just described the scale is one inch to sixteen feet.

Meaning of drawing "according to a scale"

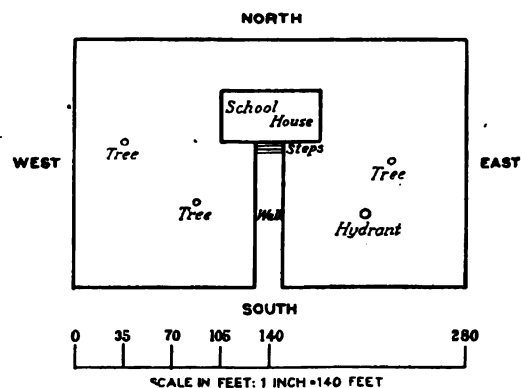


Fig. 33

In the next drawing, that of the school yard (Fig. 33), the number of feet which an inch represents must be still greater,

because the yard is much larger than the room. Here one inch represents 140 feet. According to this scale, find out how large the yard and the school building are. Find how far the trees are from each



Fig. 34

other; from the nearest fence; from the nearest part of the building.

All maps are drawn according to a scale, just as these two are. It makes no difference whether they represent a school yard, a state, the United States, or even the entire earth; all are drawn to a scale. In this book there is a map of North America (Fig. 59); to what scale is it drawn? Look at some other maps in the book to find out their scales.

Can you not make a map of your own schoolroom? What scale will you use? Put in your own desk, but omit the others. Draw also a map of your school yard. If you prefer to do so, find its size by stepping off, or *pacing*, the distance, making each of your steps about two feet long. Measure the building in the same way. After having finished these two maps, draw a third one, including in it not only the school yard, but also a few of the streets and houses near by. Let the scale for this third map be one inch for every five hundred steps.

Maps are used a great deal to show the location of places and the direction of

one place from another. To use them properly, a person must first understand what is meant by *north*, *south*, *east*, and *west*. Probably you already know this.

Ways of finding directions out of doors

One of the easiest ways to find the direction is by a compass (Fig. 34). A compass is a piece of steel, called a *needle*, which swings around easily and always points to the north. This needle is a *magnet* like the horseshoe magnets that you have seen. It points northward because some force within the earth draws it in that direction. No one knows certainly just what this force is, but it is called *magnetism*.

Another way to tell direction is by the stars. When the stars are shining, one can tell which direction is north by the help of the Great Dipper (Fig. 35). The two stars on the edge of the Great Dipper



Fig. 35.— The Great Dipper

The stars shown with four points are a little less bright than the others. *Polaris* means "North Star."

point toward the North Star. This star, which can easily be found, lies always to the north of us.

One can also find direction with the help of the sun. At noon it stands exactly south of us; and twice each year, about the 21st of March and the 21st of September, it rises exactly in the east and sets exactly in the west. Where does it rise in winter? In summer? When you face the east, which direction is on your right? Which on your left? Answer the same questions when facing the west; the south.

Northeast (N. E.) means between north and east; *southeast* (S. E.), between south and east. What, then, do *northwest* and *southwest* mean?

Point north, east, west, south, southwest, northeast, northwest. What is the direction from your desk to the teacher's desk? To the desk of one of your schoolmates? To the door? What direction is your home from the schoolhouse? From certain other houses? In what directions do some of the roads or streets where you live extend?

Now let us tell directions on the map. Lay your drawing of the schoolroom upon your desk so that the line representing the north side of the room is on the north side. Also place yourself so that you face directly north as you look at the map. Now north on the map is also north in the room, and the other directions agree with those in the room. In which direction, on the map, is the door from your desk? From the teacher's desk? Place your map of the school yard in the same position, and give the directions.

You see that the north side of this map is the side farthest from you. The east side is on your right, the south side is nearest to you, and the west side is on your left. When a map is lying before us,

the directions on it are usually the same as these.

Of course it is not always convenient to have a map lying flat. This is especially true in the schoolroom, where large maps must be hung up, so that the whole class may see them.

Let us hang up one of these maps, taking particular pains to place it upon the *north wall*. Which direction on the map is north now? You see, of course, that the north side must be the *upper* side, east is on the *right*, south is the *lower* side, and west is on the *left*.

You should drill yourself to understand directions on maps. Give directions from one place to another while the map is hanging up. Put up the map of the school yard, and any others that you may have, and tell the directions from place to place.¹

It is clear now what a map is. It is a drawing telling something about a country, just as a letter may tell in writing what a place is like. When you read such a letter, you think of the place and have some idea of how it looks. So, when you look at a map, you should think about the country it represents, how it looks, and how far apart the places are.

1. How can a map of a schoolroom be drawn? 2. What is meant by drawing "according to a scale?" 3. **Review questions** Tell how you have drawn some map of your own. 4. What are some of

¹ *To the Teacher:* After the children are quite at home in using the map when it is hung on the north wall, hang it on the other sides of the room and have them give the directions. This is very easy work if properly graded; but careless work at this point, in regard to directions on the map, often so confuses children that they never fully recover from their confusion. At the proper time, but much later than this, show that toward the top of the map is not always north. (See Fig. 58.)

the ways of finding directions out of doors? 5. What are the directions on a map?

1. Examine a compass. 2. Find the Great Dipper and the North Star. 3. Show how you can tell directions by your

shadow at noon. 4. If you stood at the north pole, what direction would be on your right? What direction on your left? Answer this question by the use of a globe. 5. Answer the same questions for the south pole.

VI. GENERAL FACTS ABOUT THE EARTH

1. Form and Size of the Earth

Hundreds of years ago, before America was discovered, men thought that the earth was flat. It certainly *seemed* flat to them, just as it does to us. A few learned men, however, believed that the earth was a round ball, and that if a person should travel straight on in one direction, he would, in time, return to the place from which he started. You can see how this would be if you push your finger straight around on the outside of an orange until it comes back to the starting point.

At that time men were in the habit of going to a land called India for spices, silks, and jewels. To reach India from Spain they traveled thousands of miles *eastward*. Christopher Columbus was one of the men who believed that the earth was round. So he thought he could reach India just as well by going *westward* across the ocean. He also thought that the distance would be much less. He therefore went to the king of Spain and asked him for ships and men to make the journey.

The king refused the request because the plan seemed foolish, but Queen Isabella came to Columbus' aid. At last, on August 3, 1492, he sailed westward from Spain out into the open Atlantic Ocean

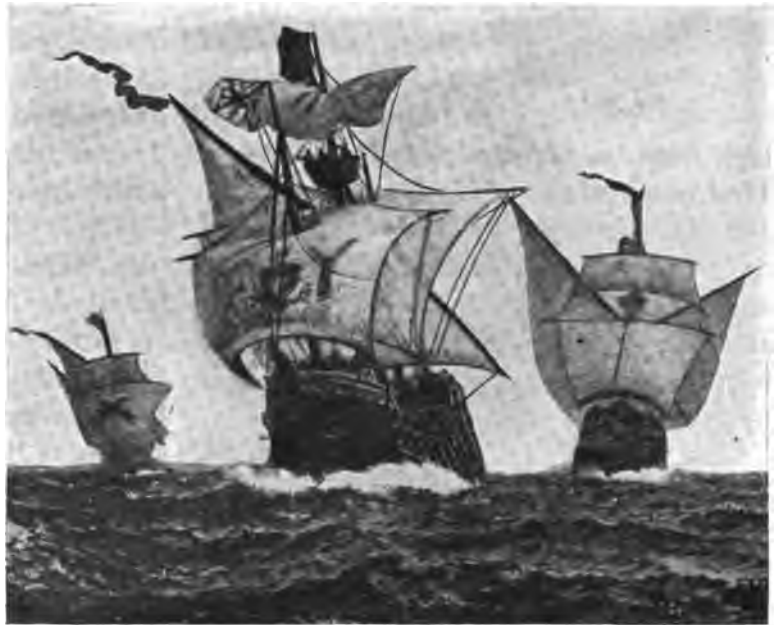


Fig. 36. — The fleet of Columbus

(Fig. 36). Almost everyone thought that he was going on a voyage from which he would never return; but after a journey of several weeks and many adventures, he discovered land on October 12. The land he discovered is one of the Bahama Islands (Fig. 58).

Thinking he had reached India, Columbus called the natives *Indians*. He did not know that a continent and a large ocean still lay between him and India.

After Columbus had returned in safety, other men dared to explore the *New World*, as it was called, to distinguish it from the *Old World*, where all white men then lived. One of these explorers, named Magellan, started to sail entirely around the earth. He was killed when he reached the Philippine Islands but his

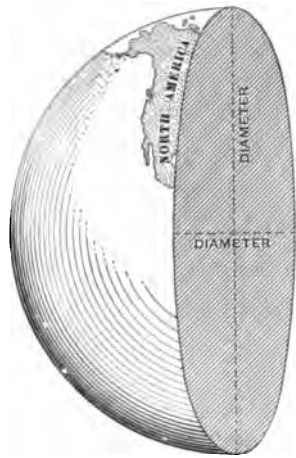


Fig. 37

men went on and completed the voyage. That was in the year 1522, and it was the first time that anyone ever sailed around the earth. Since then many people have made the journey, in both directions, and the earth has been studied so carefully that everyone now knows that it is round.

The great, round earth is a huge ball, or *sphere*. The reason why it does not appear round to you is that you see so little of it at a time.

If you see very little of an orange, for example, it will not look round. To prove this, place a piece of paper with a small hole in it upon an orange so that none of the surface of the orange is seen, except that which shows through the hole. You will then observe that this part appears to be flat.

If we could get far enough away from the earth to see a large part of it at once,

we could see that it is round (Fig. 46). We know that the moon is round, because we look at it from a great distance.

Our earth is very large; in fact, it is much larger than the moon. A lofty mountain seems to us very high, but even the highest mountains are only a very small part of the great earth; when compared to the whole sphere, they are no larger than a speck of dust compared to an apple. The loftiest mountains are rarely more than three or four miles high, but the *diameter* of the earth (Fig. 37), or the distance from one side to the other through the center, is nearly 8,000 miles.

The distance around the earth, on the outside, called the *circumference*, is about 25,000 miles. This distance, as you see, is a little more than three times the diameter. The circumference of any sphere is always a little more than three times its diameter.

1. What did people formerly think about the form of the earth? 2. What is its form? 3. Tell the story of Columbus. 4. Why did he call the savages Indians? 5. Why was the land he discovered called the New World? 6. What makes Magellan's voyage important? 7. Explain why the earth does not appear to us to be a sphere. 8. What is meant by the diameter of the earth? By the circumference?

1. Trace Columbus' voyage on a globe. Find India on a globe and see how one can go by water from Europe to India by sailing eastward; by sailing westward. 2. Make a sphere in clay. Measure its diameter with a needle, and its circumference with a string.

The size of the earth

Review questions

Suggestions for extra work

2. Daily Motion of the Earth

It does not seem to us that the earth is moving, but the ground on which you stand is really moving faster than any passenger train that you ever saw. The whole earth is turning around like a top. This motion is called its *rotation*. Since the earth turns completely around, or makes one complete rotation, every twenty-four hours, this motion is called its *daily rotation*.

It is this daily rotation that causes day and night. An electric lamp can light

How rotation
causes day
and night

only one half of a ball at a time, as you know (Fig. 38).

The sun is a kind of lamp for the earth ball, for all the light of our day comes from the sun. The sun, then, can light only one half of the great earth at a time.

This being the case, if our globe stood perfectly still, it would always be day on the side facing the sun, and night on the other side.

Since the earth rotates, the part that is getting the light is always changing. Thus, while the sun is setting for some people, it is rising for others. When it is noon where you live, it is midnight at the point opposite you, on the other side of the earth.

This is why there is a period of daylight and a period of darkness at the place where you live. These two periods together must last twenty-four hours, because the earth makes one complete rotation in that time.

The daily rotation also causes sunrise and sunset. Our earth *seems* to be standing still, while each day the sun *seems* to rise in the east, to pass over us, and to set

in the west. Yet we have just seen that the earth is not by any means standing still. Neither does the sun really "rise" or "set." The reason that the sun *seems* to rise in the east is that the earth is always rotating *toward* the east. We first get the light of the sun from that direction because the earth is turning toward that direction. The sun seems to set in the west because, as the earth continues to rotate, we see the sun last in the west.

How this
motion causes
sunrise and
sunset

Although men speak of the sun *rising* in the east and *setting* in the west, they really know better. They express their thoughts in that way simply because it is the easiest way. It would be difficult to think of any better way. Can you?



Fig. 38

Hundreds of years ago, however, all people thought that the sun really rose, and that after moving across the heavens, it really set in the west. Our use of the words *sunrise* and *sunset* has come down to us from that time.

Since the earth is rotating with so great speed, why can we not notice it? The answer is simple. Everything on the earth is moving with it, including ourselves. We therefore do not rush past other objects as we do on a moving train; yet the only way of seeing that we are moving would be to observe that we were passing the objects about us.

Why are we not all hurled away from the earth? When the string breaks by

Why rotation does not hurl us away which a stone is being whirled around, the stone flies off. Why, then, do not we and other objects, such as the water in the ocean, fly away into space?

The reason is that the earth draws everything toward it, and holds it there. If you push a book from your desk, it falls to the floor; and when you spring upward into the air you quickly return to the ground. All objects are drawn downward because the earth is pulling upon them. This force, which draws all objects to the earth, is called *gravity*, and you see how very important it is.

You have perhaps watched a wheel spin about on a rod or pin, the rod or pin holding it in place and carrying its weight. The earth spins around in much the same way; but no rod is necessary to hold it in place. What a mighty rod it would have to be, if there were one! A spinning top does not turn around a

rod, either. It turns around a line running through its center, which is called its *axis*. The earth also *rotates around its axis*.

The axis of the earth is really nothing that you can see. It can be represented, however, by a straight line that runs through the center of the earth and extends to the surface in both directions. Such a line is called the *axis of the earth* (Fig. 39), and the two ends of the line are called the *poles*. One end of the axis is the *north pole*, and the other the *south pole*.

You can understand this better by running a long, slender stick, or needle, through the center of an apple. The stick represents the axis, and the places where its two ends appear at the surface represent the two poles of the earth. You can then spin the apple very much as the earth spins around on the line called its axis (Fig. 38).

If you were to go far northward from the place where you live, you would pass through the land of the Eskimos; and if you could go on, you would, in time, come to the north pole. Or, if you should go south, and went far enough, you would come to the south pole.

Many men have tried to cross the icy seas that surround the north pole (Fig. 40); but, until 1909, no one had been able to get quite so far as the pole. In that year Admiral Peary, after many trials, at last reached the north pole; and Captain Amundsen reached the south pole in 1911.

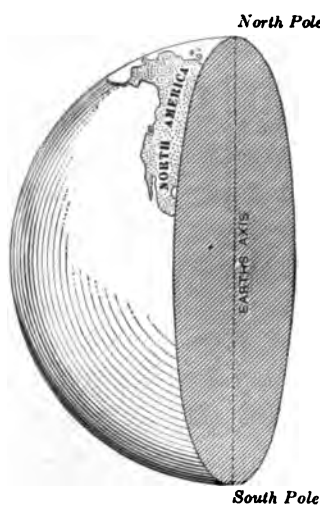


Fig. 39

Of course, Commander Peary did not find anything at the north pole to mark the place. He was able to tell that he was there by the position of the sun. If he had been there during the night, he would have found the *North Star*, toward which the earth's axis points, almost directly over his head.

Midway between the poles we think of another line, drawn around the earth on the outside (Fig. 41). This is called the *equator*, because all parts of it are equally distant from each of the poles. The distance around the earth was given on p. 36. What, then, is the length of the equator?

As the earth turns on its axis, all points on the surface must go with it, just as every part of the skin of an apple turns with the apple. Since the earth makes one complete turn each day, a man at the equator travels 25,000 miles in twenty-four hours. This is at the rate of over 1,000 miles an hour, while the fastest trains travel little more than sixty miles an hour!

1. Describe the daily motion of the earth. What is this motion called? 2. How does this motion cause day and night? 3. How does it cause sunrise and

sunset? 4. Why can we not observe that the earth is rotating? 5. Why is not every loose object hurled from the earth by this rapid motion? 6. What is meant by the axis of the earth? By the poles? 7. Point toward

Review
questions



Fig. 40

each of the poles. 8. What is meant by the equator? How long is it?

1. Locate the poles on such a sphere; and also represent the equator. 2. Use a horseshoe magnet to see how it attracts iron. 3. With a globe or an apple, and an electric light, show how it is day on one side of the earth while it is night on the other side. Show also why the sun appears to rise in the east. 4. Where did people, long ago, suppose that the sun went at night?

Suggestions
for extra
work

3. The Zones and the Hemispheres

The hottest part of the earth is near the equator. The reason for this is that the sun, at midday, is directly over the heads of the people who live in that region. You know that the sun's rays feel warmer at noon than in the early evening, because the sun is more nearly overhead at noon. At the equator,

Why there is
a hot belt
around the
central part
of the earth

however, and for many miles to the north and south of it, the sun is high in the heavens both in summer and winter. Thus there is a wide belt, extending all the way around the earth, that never has any winter; it is warm every day in the year, as it is in summer where we live.

The northern boundary of this hot belt is called the *tropic of Cancer* (Fig. 41);

it is a line about 1,500 miles north of the equator. The southern boundary, which is about 1,500 miles south from the equator, is called the *tropic of Capricorn*.

In all the vast space between these two lines, or *tropics*, the sun is straight overhead during a part of the year; and it is never very far from overhead at noon.

Point out these two lines on Fig. 41. How many miles wide does this belt seem to be? Over all this vast region on the lowlands the weather is hot, or *torrid*, and for that reason this is called the *torrid zone*. It is also called the *tropical zone*, because it is bounded by the two tropics.

It makes a great difference on the earth whether the sun is nearly overhead or not. For example, the warm weather during every day of the year

Effects of the heat on life there

1. Its effects on vegetation

in the tropics causes the vegetation there to be very different from ours. In sections where there is much rain, plants grow very rapidly. You have, perhaps, noticed how grass and other plants thrive on warm, damp days. Where there is such weather all the time, plants grow in great numbers and very rapidly. Many kinds of trees are found in the forests, and the vines, trees, and other plants grow so close together that one cannot get through them without cutting a path.

The negroes of Central Africa live in the tropics, and the effects of the heat upon them are seen in many ways. For example, they do not have to work hard to get food. Fruits can be picked from the trees and bushes at any time of the year; and if beans, potatoes, and corn are wanted, they can be made to grow very easily. The need of clothing makes little trouble, partly because not much of it is wanted. Fig.

2. Its effects on the people

Fig. 42 shows how little may be worn. Sometimes skins of animals are used; but a common material is cloth made from the bark and fiber of trees and other plants that grow there.

Shelter, likewise, is easily provided. Sometimes the people live in trees, or in caves, as the Swiss Family Robinson lived for a time. Sometimes they stick

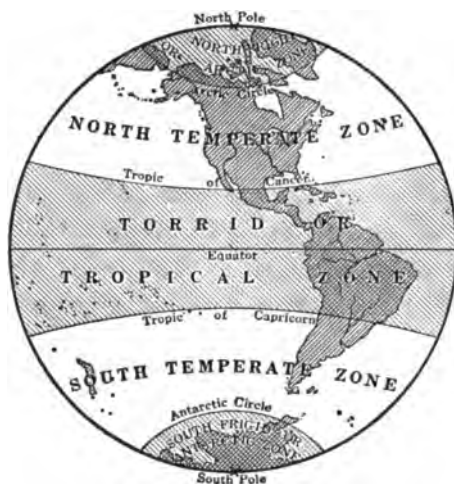


Fig. 41

branches of trees into the ground in the form of a circle, fasten the upper ends together, and then cover the sides and top with such materials as brush, mud, grass, and straw (Fig. 42). Their huts are always very simple; they usually have no windows, and are only one story high. A savage negro, when he first saw one of our houses, cried out, "This is not a hut; it is a mountain with many caves in it!" You can see that such people do not have to work hard for food, clothing, or shelter. Are they fortunate to have the sun so directly over their heads?

North of the torrid zone, the sun, even at noon, never stands directly overhead; and the greater the distance from the equator, the greater is the slant at which the sun's rays shine upon the earth.

Why there are cooler belts both north and south of the torrid zone

Our country is in this belt, and here at noon you always find your shadow pointing north; for the sun is south of you. Notice the direction and length of your shadow at midday, and the position of the sun at that time.

South of the torrid zone, also, the sun never stands directly overhead. But the people living there find their shadows pointing south at noon, because the sun is north of them.

Since the sun's rays strike the earth at a slant in both of these belts, it is much cooler in them than in the torrid zone.

There is a belt, then, on each side of the broad torrid zone, where it is neither very hot nor very cold. The climate there is called *temperate*, and in these belts the summers are warm and the winters cold. The belt north of the torrid zone is called the *north temperate zone*. It extends around the earth all the way from the tropic of Cancer to the Arctic circle (Fig. 41). How much of the United States lies within this zone?

The names of these cooler belts, and their boundaries

The belt south of the torrid zone is called the *south temperate zone*, as you might expect. It extends around the

earth from the tropic of Capricorn to the Antarctic circle.

Near the poles the rays of the sun reach the earth at a still greater slant, much as they do with us early in the morning or late in the afternoon. Even in the middle of the day the sun lies low



Fig. 42

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in the sky, near the horizon, and the shadows are very long. Therefore, the climate there is very cold, or *frigid*; the ground never thaws out; and the ice never entirely disappears from the sea (Fig. 40). Indeed, there is never any warm summer near the poles, just as there is never any winter near the equator.

Why there are two cold zones, and their names

The two regions around the poles are called the *frigid zones*. That about the north pole is called the *north frigid zone*, the other the *south frigid zone*. Since they surround the poles, they are also sometimes called the *polar zones*. The north frigid zone is the home of the Eskimos (Fig. 44). But, there are no

people living in the south frigid zone, although a large body of land is there (Fig. 46).

The effects of the cold on life in the frigid zone are as striking as those of the

these canoes and sleds are not made of wood like ours. The reason is that wood does not grow there. The only wood that the Eskimos have is that which drifts ashore from other lands or from the wrecks of vessels. There is so little of this, that pieces of wood are highly prized. An Eskimo, therefore, will gladly exchange valuable furs for a small amount of wood.

Only small plants grow in so cold a country, such as mosses, grasses, and very low bushes; and the wild plants furnish no food except a few small berries. With so little vegetation there can be few wild animals on the land, for they would have nothing to eat. There are a few reindeer, foxes, and wolves, but scarcely any other land animals.

What, then, can the Eskimos themselves find to eat?

Not very many things, to be sure. They have to go to the sea, not to the land, for their

food. From one year's end to another, they are engaged in fishing, and in hunting the seal and walrus; and now and then they catch sea-birds and the polar bear. They have very little food except the flesh of these animals. Even that is difficult to get, especially in winter when the sea is frozen over with thick ice.



© Underwood and Underwood

Fig. 43. — Eskimos in northern Greenland

This is their summer home. In winter what kind is used (Fig. 45)? These people frequently trade with the whites. What shows that? Can you see why this land could not be cultivated even though the temperatures permitted?

heat on life in the tropics. For example, no trees can grow in such a country. No doubt many Eskimos have never seen a tree of any kind.

Effects of the cold on life there

1. Its effects on plants and animals

In summer the men go hunting in small canoes or *kayaks*; and in winter they go on long and dangerous journeys over the ice on sleds or sledges drawn by dogs. But

2. Its effects on the people

a. On their food and clothing

These sea animals supply oil for cooking as well as for heat and light in the long, dark winter. The seals have a layer of fat under the skin which helps to keep them warm in winter. This seal fat, or *blubber*, is burned in small lamps. But the Eskimos do not do much cooking. They are fond of raw meat and like to eat it even when it is frozen!

Parts of the bodies of animals take the place of wood in supplying the men with tools and weapons for obtaining food. The bones of the animals are used to build the framework of the canoes and sledges, and their skins are stretched over these frames in place of boards. Bones are also used to make spears, fish-hooks, pipes, and even needles; and skins are made into harness for the dogs.

The Eskimos need the warmest kind of clothing (Fig. 44). Their boots are made of the skins of animals, with the fur left on. Their clothes are also made of fur; and in that cold land they need to wear these furs both in summer and in winter. How different this is from the clothing worn by the negroes of central Africa (Figs. 1 and 42)!

The Eskimo houses seem even stranger than their clothing. Although there is plenty of stone for building, it hardly pays

to build stone houses, because the Eskimos must move from place to place in order to find food. Very often whole villages must be moved many miles on this account.

b. On their plans for shelter

In summer, therefore, the Eskimos live in tents made of skins (Fig. 43), which are easily taken down and carried about. In winter they live in huts made of snow. There is always plenty of snow at hand, no matter where the people happen to be; and in an hour or two they can build an *igloo*, as the Eskimo snow hut is called.

Fig. 45 is a picture of one of these igloos. It is about forty feet around the outside, and is made of blocks of snow piled one on another, until it is



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Fig. 44. — An Eskimo and his sled



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Fig. 45. — An igloo

high enough inside for a man to stand up. The entrance is through a snow tunnel about ten feet long, so low that

the Eskimos have to crawl through it on their hands and knees. The purpose of this tunnel is to keep the cold winds out of the hut; and when all the persons are inside, the tunnel is tightly closed, so that no wind can enter.

A stand, made of snow, is used for the lamp. Low benches of snow, covered with furs, are used for beds. A whole family, and sometimes two families, live in a single hut that is no more than ten or fifteen feet across.

If a family decides to remain in one place a second winter, a new hut must be built, because the old one melts down during the summer. No wonder that the huts are small!

Thus the nearly vertical rays of the sun in the tropical belt cause food, clothing, and shelter to be provided in one way. The great slant of the sun's rays in the frigid zone causes these necessities to be provided in a very different way. In the temperate zone, where we live, the moderate slant of the rays causes them to be provided in a third way. In which of these zones do you think it is best to live? Why?

Since the equator is midway between the poles, it divides the earth, or sphere, **The different hemispheres** into two equal parts, called *hemispheres* (*hemi* means half). The half of the earth north of the equator is called the *northern hemisphere*, and that south of it the *southern hemisphere*. In which of these is the United States?

The earth may also be divided into halves by a circle running north and south through both poles. The western half, in which the New World lies, is called the *western hemisphere*. The eastern half, or the Old World, is called the *eastern*

hemisphere. You will find these two hemispheres represented in Fig. 46.

Although these two hemispheres seem to touch each other in only one spot, they are really the halves of a sphere, and their edges touch each other all the way around. Cut an old rubber ball in two and place the halves side by side to see how this statement is true.

1. Why is there a hot belt around the central part of the earth? 2. Give the boundaries of this belt, and its name. 3. State the effects of the heat there on vegetation. 4. Its effects on the people. 5. Why is there a cooler belt north and south of the torrid zone? 6. Give the names of these cooler belts and their boundaries. 7. Why are there two cold zones, and what are their names? 8. State the effects of the cold on plants and animals there. 9. Its effects on the food and clothing of the people. 10. Its effects on their plans for shelter. 11. What is meant by hemispheres? What is meant by the northern hemisphere? By the southern hemisphere? By the eastern and western hemispheres?

Review questions

1. Write a story telling the kinds of clothing you would need in each zone in going from the north to the south pole. 2. In passing southward on such a journey, in what different directions would you look at noon to see the sun? 3. Read the story of Nannook, an Eskimo boy, in *Child Life in Other Lands*, by Avis Perdue. 4. Do you think that life in the temperate zones is more or less healthful than life in the tropical zone or the Arctic zone? Give reasons for your answer.

Suggestions for extra work

4. Latitude and Longitude

If we learn that a certain place is in the torrid zone, or in one of the other zones we know something about its location; yet we do not know very much about it, because each zone is so large.

To help locate places more exactly, other circles than those already mentioned are used upon maps and globes. Some of these circles extend east and west, on each side of the equator, as you can see in Fig. 46. The distance between them is measured, not by miles, but by *degrees*, each of which is equal to about seventy miles. How many degrees are there from one of these circles to the next in Fig. 46? About how many miles is that? We can thus quickly learn how far any place on or near one of these circles is from the equator. For example, how far north of the equator is New York City (Fig. 59)? Chicago?

Instead, however, of saying that a place is a certain number of degrees north or south of the equator, we say that it is in so many degrees *north* or *south latitude*. Latitude means simply the distance north or south of the

equator. Places north of the equator are in *north latitude*, and those south of it, in *south latitude*. The circles running east and west, which are drawn to show the latitude of places, are called *circles of latitude*. With their help, find the latitude of New Orleans; of Boston (Fig. 61).

Other circles, extending north and south from pole to pole, help to locate places in an east and west direction. A line that extends through England is agreed upon as the starting point in measuring. Places east of this line are said to be in so many degrees *east longitude*; places west of it, in so many degrees *west longitude*.

Longitude, as you see, means simply the distance east or west of this principal line; and these circles are called *circles of longitude*. In what longitude is New York City (Fig. 59)?

1. How are places located in a north and south direction on the earth?
2. State the meaning of the word latitude.
3. How are places located in an east and west direction?
4. What is meant by longitude?

5. The Continents and the Oceans

The left half of Fig. 46 shows how our half of the earth looks, the New World that Columbus discovered. The many little dots that you see represent islands; but there are two masses of land so large that they are called *continents*. Find their names, if you do not already

know them. Perhaps you can point to the part of North America in which you live.

Notice the form of our continent. It is broad in the north, but tapers almost to a point where it joins South America, giving it the shape of a triangle. South America is very similar to it in form.

How places are located in a north and south direction on the earth

How places are located in an east and west direction

Meaning of longitude

Review questions

The continents of the New World, and their shape

Draw its outline by using only three straight lines.

You have learned that there is about three times as much water upon the surface of the earth as land; but more than three fourths of the western hemisphere

earth. Give their names. There is a fifth one, called the Indian Ocean. What continents largely surround it?

Fig. 315 is a different kind of map, showing all the continents and oceans together. Name the continents shown there, and point out each. Name the oceans, and point out each. Which ocean would one cross in going from the United States to Europe? From the United States to Asia? Which of the five oceans is most important to us?

The water in the ocean occupies vast low plains on the surface of the earth. The depth of the ocean

depth of this water varies greatly, though it is a little over two miles deep on the



Fig. 47. — An ocean liner

© Detroit Publishing Co.

Compare the great ship in size with the tug that is towing it about the harbor.

is water. On which side of the continents is the largest ocean, and what is its name? What ocean is east of the two continents? Find two other oceans on this map.

Why are they of much less importance to us than the Pacific and the Atlantic?

The right half of Fig. 46 shows the other half of the earth, the Old World. There

is much more land there than in our hemisphere, and there are four continents. What are their names? The largest of all is Asia, and the smallest is Australia. The most important one to us, however, is Europe. Can you tell why?

One other continent appears far to the south both in the eastern and the western hemispheres. This is the Antarctic continent, which is too cold to be inhabited (p. 42).

Four of the oceans in the Old World are parts of the four found on our half of the



Fig. 48. — An ocean vessel in dry-dock

The water has been pumped out from around the ship in this dry-dock, which shows you how far it must sink into the water.

average. In many places, however, the ocean is more than four miles deep; and in one place, in the Pacific Ocean, the

depth is nearly six miles. If the highest mountain in the world could be placed in the water at this point, its peak would not rise above the level of the sea.

The oceans are of great value for transportation as well as for water for rain. They are broad highways upon which thousands of ships are always traveling, carrying people, food, iron and steel goods, mail, and many other things. A single large steamship, such as that shown in Fig. 47, may employ 500 or 600 men and carry several thousand passengers, besides a large quantity of freight.

One of the five oceans is far more important than any of the others. Can you, by examining Fig. 315, suggest which it is, and the reason? One of the most important ocean routes in the world is that between New York and Liverpool. Trace it on that map. Many other great coast cities of Europe trade extensively with New York. Name some of these cities, as shown in Fig. 315. The fastest steamers need only five or six days for the voyage across the Atlantic.

One of the greatest difficulties in their way is that of loading and unloading freight. Wagons can be driven alongside a railway car and quickly filled or emptied. But a large ship may sink thirty or more feet into the water (Fig. 48), so that it is difficult to find a place where it can come close to shore. Besides this, it cannot load or unload where there are large waves, such as are caused by storms.

Again, ships meet with many dangers upon the ocean. Storms are often severe,

and the waves are so high that sometimes they sweep over, and for a moment almost cover up, even very large vessels. When far out from land, large, well-built ships are not in serious danger in such weather, but smaller vessels, especially those that are old or poorly built, may be destroyed.

When approaching land, however, sailors of all vessels must be careful. The



Fig. 49. — A reef

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shores of large lakes and the ocean are often very irregular, and the depth of the water may change quickly. In some places there are dangerous shallows, in others hidden rocks, or reefs, that lie near the surface (Fig. 49).

There are also currents that may float a vessel out of its course; and fogs are often so dense that a person can see only a short distance ahead. It is then very easy to lose one's way at sea. In addition to all this, strong winds and high waves may drive a ship in the wrong direction, in spite of all that can be done to prevent it.

Not all these difficulties and dangers can be overcome, but much is done to make shipping both easy and safe. The

irregular shape of the coast itself helps toward this end. Very often the land partly surrounds a body of water, as in

large vessels can be firmly fastened, or *moored*, to these wharves, and trucks or railway cars can be drawn out on them



Fig. 50

Find here and describe a harbor; a bay; a point; a cape; a peninsula; an island; an isthmus; a strait.

Fig. 50, forming what is called a *bay*. Some of these bays are very large, being

How such difficulties and dangers are met

1. How safe harbors are obtained

even hundreds of miles long, but many more are quite small. Many of the small bays have an opening large enough for vessels to enter easily, but small enough to shut out most of the fierce waves. If the water is deep, as is often the case, such a small bay makes a fine *harbor* (Fig. 50); that is, a place where vessels may enter and be protected from storms and waves.

For the purpose of loading and unloading ships, piers of wood or stone, called *wharves*, are built from the shores of the harbor out into the deep water. Even

called a *breakwater* (Fig. 52), because it breaks the force of the waves and prevents them from entering the space behind.

It often happens that harbors are not as deep as they need to be. The vessels



Fig. 51

© Keystone View Co., Inc.

The wharves in this picture were photographed from an airplane. Find two ocean vessels in this picture; five wharves; lighters; warehouses; freight cars.

now used are much larger and sink more deeply into the water than those formerly used. On that account many harbors



Fig. 52

© Brown Bros.

that were once deep enough are now too shallow. All the time, too, the waves and tides are bringing sediment that settles in the harbors, slowly filling them up.

Vast sums of money have to be spent, therefore, in deepening harbors. The loose sand and mud are dug out by dredges; but when the bottom is solid rock, it has to be blasted out. This work is of so great importance to so many people that the United States government spends millions of dollars every year in doing it (Fig. 53).

So long as a ship lies in a good harbor, it is safe from most dangers. But when it is outside, on its way from one harbor to another, dangers are ever present. Did you ever stop to think how a vessel finds its way on the great ocean?

While a ship is out of sight of land, its officers must guide it by the position of

the sun or of certain stars, using the compass and other instruments. But during storms and foggy weather, the winds and currents may cause even a large steamship to drift out of its course. Then, as a ship approaches land, the chief help is from *lighthouses* (Fig. 54), which are built in many places along the coast.

Often the land extends out into the water, forming what is called a *point* or a *cape*, or if large and almost surrounded by water, a *peninsula* (Fig. 50). Lighthouses are placed far out on such points or capes or peninsulas, or on islands near the mainland, so that their lights may be seen a long distance over the water. They are also built elsewhere, wherever the danger requires.

In some places there are dangerous shallows, or *shoals*, where it is impossible



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Fig. 53. — Deepening New York harbor

to build a lighthouse. In that case, ships with lights on their masts, called *lightships* (Fig. 55), are securely anchored near by to give warning to sailors.



Fig. 54

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When the captain sees the light of a lighthouse or lightship, he knows that he is nearing land and must be very careful. How can he tell which light he sees when there are so many lighthouses? This is not difficult, for the lights are not alike. Some are white, others red; some give a steady light, others turn around and, as they turn, send out flash after flash. There are many different kinds, and the maps, or *charts*, that all ships carry, tell the captain where each is placed. He also knows the special kind of lighthouse to be found at the entrance to the harbor for which he is bound.

In case of heavy fog, when the lights cannot be seen, powerful horns and whistles are blown for a warning. The lighthouses and lightships are well provided with these; they are blown every few seconds, or minutes, according to the need. When sailors approach the coast during foggy weather, they always

listen for the sound of the foghorn.

By such helps as these a vessel finds its way to the entrance of the port to which it is going. What a lonesome life the people who live in the lighthouses and lightships must lead, attending to the lamps and giving warning in the fogs! But how important their work is in saving ships from destruction on the wave-beaten coasts!

The entrance, or *channel*, to a harbor is often narrow, and sometimes on each side there are reefs and shoals 3. The use on which a vessel might be made of buoys wrecked. It is necessary, therefore, that the channel be clearly marked. This is done by placing hollow iron *buoys* here and there. These float on the surface, but are anchored firmly in their places. They are guide-posts to the sailor, pointing out the way.



Fig. 55

Dangerous rocks and shoals are also marked by buoys; and many of these are so made that they send out a shrill whistle or ring a bell every time they are

moved by the waves. On this account | boat is not dashed to pieces against the
they are called *whistling* buoys or *bell* | side of the big vessel.



Fig. 56

At times old buoys have to be replaced with new ones.

buoys (Fig. 56). Have you ever seen any | time in keeping a sharp lookout for ship-
of these bobbing about on the water? | wrecks, and in going to the rescue. At

It is so important that no
mistake be made in enter-

4. The work
of pilots

ing a harbor
that men called

pilots make a business of
guiding or piloting ships
into harbors. They go out
in small boats, often out of
sight of land, to watch for
an approaching vessel.
When they see one, they sail
toward it as fast as they
can. In stormy weather it
is exciting to see a pilot
come up in his little boat,
tossed about by the huge

waves, and clamber up the side of the
ship. It seems a wonder that he is not
washed into the sea, and that his small

In spite of all the care
that is taken to guide ships
safely into har-
bors, one is
now and then

5. The work of
life-saving
stations

wrecked on the coast (Fig.
57), especially in foggy and
stormy weather. Then, of
course, the lives of sailors
and passengers are in dan-
ger. Hence it is important
that some means be
provided for saving ship-
wrecked people. This is
done through *life-saving*
stations. Here and there
along the coast such sta-
tions are found, where
several men spend their



Fig. 57

© Brown Bros.

such times they boldly launch their life-
boats through the surf and perform
many acts of bravery.

1. Name the continents in the New World, and tell their shape. 2. Name and locate the oceans in the New World. 3. Name and locate the continents of the Old World; the oceans. 4. What can you tell about the depth of the ocean? 5. Explain the value of the ocean for transportation. 6. Mention some of the difficulties and dangers ocean vessels must meet. 7. What is meant by a harbor, and how are safe harbors obtained? 8. How are ships guided along the coast? 9. What are buoys, and how are they of value? 10. Explain the work of pilots. 11. Of life-saving stations.

1. Compare the amount of land in the eastern hemisphere with the amount in the western (Fig. 46). 2. On maps of the northern and southern hemispheres how would the amounts of land compare? 3.

Leaving out the islands, how many land bodies can you find? 4. Which body of land extends farthest north? 5. Which farthest south? 6. Which grand division has the most regular coast line? 7. Which the most irregular? 8. Which grand divisions are crossed by the equator? 9. Name the grand divisions that lie in three zones. 10. Name those that lie in but two. 11. Tell which land body is not inhabited and why. 12. What is the largest island in the world? 13. Where is it? 14. Name and locate three other large islands. 15. What direction is North America from South America? 16. Locate Cape Horn; Cape of Good Hope; Cape Guardafui. 17. Locate eight seas on the eastern hemisphere and two on the western. 18. Which of these seas are inland bodies of water?

Suggestions
for extra
work

PART II. NORTH AMERICA

I. THE COUNTRIES OF NORTH AMERICA

If you look at the map of North America (Fig. 59), you will see that the continent is divided into several countries. In the center, extending from ocean to ocean, is the *United States*. North of our country is *Canada*, and northwest of that is *Alaska*. South of us lies *Mexico*, and southeast of that is *Central America*. Make a simple drawing of North America, and upon it mark off each of these sections.

The principal divisions of North America

You remember that Spain was the nation that helped Columbus to make his discovery of America. After his voyages, many Spaniards came over and settled in the southern part of the continent.

The countries in which Spanish is the principal language, and the reason

They occupied the parts now called Mexico and Central America. All this section, and some of the land to the north of it, now a part of the United States, was for many years owned by Spain. Indeed, at one time it all bore the name of *New Spain*; but the government by Spain was so bad that the people rebelled against it, and, by war, secured their independence.

Although the Spanish language is still spoken in all this section, it is now divided into several independent countries. The larger part of it, called *Mexico*, is now under one government; *Central America* is divided into several

small nations. It is called Central America because of its position between two continents. There is really no country of that name, but a union of the countries of Central America is being planned.

The small country of *Panama* occupies the narrow Isthmus of Panama, which joins Central America with South America. That is where the Panama Canal is located, connecting the Atlantic and Pacific oceans (p. 148).

Other nations besides Spain sent explorers to America and made settlements.

Chief among these were the English and French. The English settlers at first made their homes along the eastern coast, as in Massachusetts and Virginia. The French chose the basins of the St. Lawrence and Mississippi rivers. Find these rivers on Fig. 58. As the result of war, the English obtained control of the French territory, and English became the principal language of all the continent north of Mexico.

Why English is the principal language in our country, and why French is spoken in some places

Even now, however, one is reminded of the old French rule. French is still heard in New Orleans, near the mouth of the Mississippi River, and is the common language in the cities of Montreal and Quebec, on the St. Lawrence River. Point out these cities on Fig. 61. The names of many places in the Mississippi

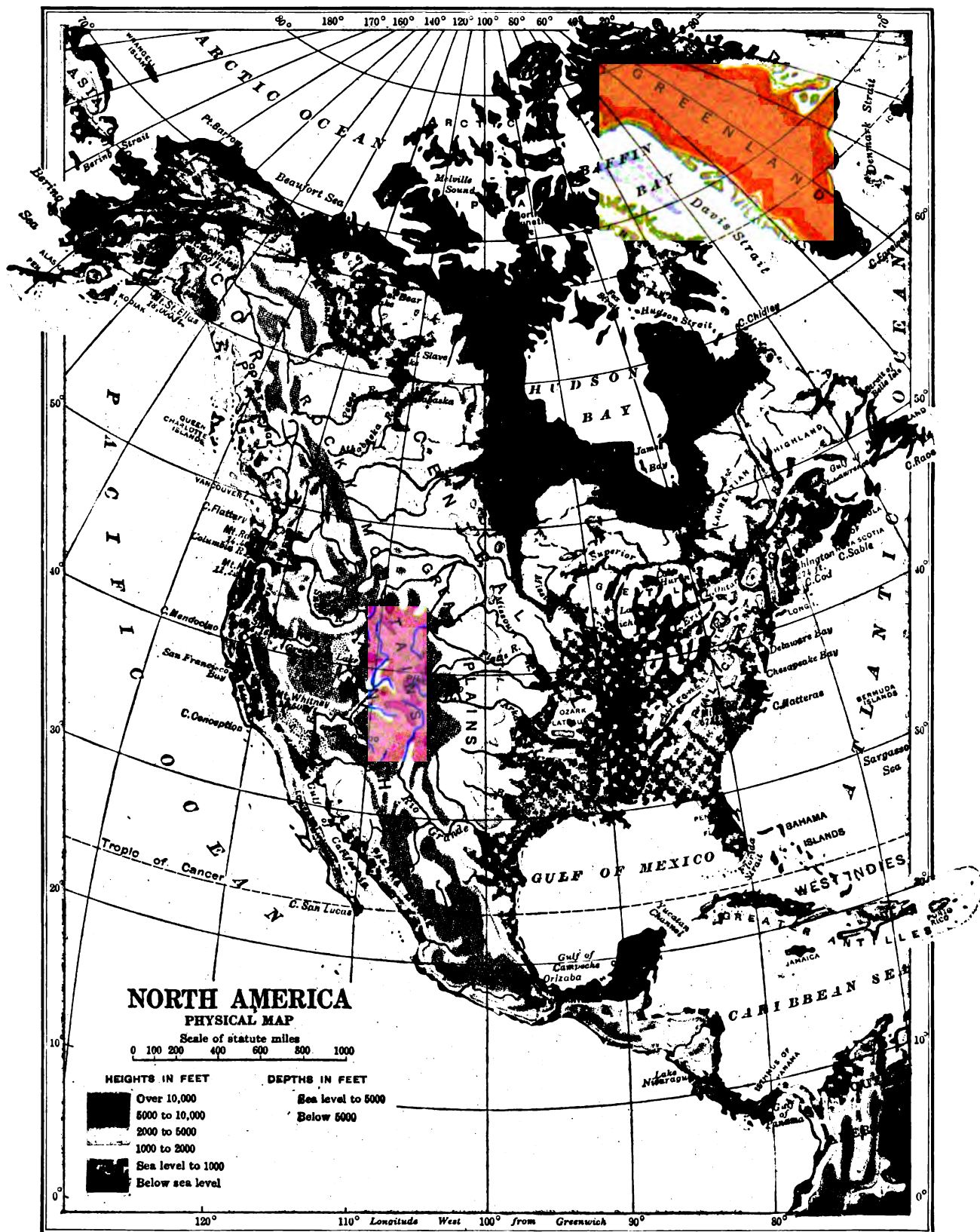


Fig. 58

and St. Lawrence basins, such as New Orleans, St. Louis, and Montreal, are French. They were given when these places belonged to France.

For many years the colonies in America were governed by England; but finally

How the
United States
came to be a
separate
country

many of the colonists became dissatisfied with English rule.

As a result, a war for independence broke out, which lasted several years. The leader of the colonies in this war was General George Washington. The colonists declared themselves independent on July 4, 1776, a date whose anniversary you celebrate every year. How old, then, is our country? Independence was not gained, however, until later, after several years of hard fighting and much suffering.

Our ancestors who fought in this war formed a government of their own which they called the *United States*. At first there were only thirteen small states in the Union, all on the Atlantic coast. These were New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, and Georgia. Find each of them on Fig. 63. What a small part of the United States they now form!

Gradually other states and territories were added, until our country now extends across the continent, as you see. It even includes Alaska (p. 143) and important groups of islands in the Pacific and Atlantic oceans (p. 147).

Our flag still has its thirteen red and white stripes, to remind us of these thirteen original states. At first there were only thirteen stars in the blue field of the flag. But a star has been added

for each new state, until now there are many more. Count the stars in the flag to see how many states there are now.

England was able to keep a large part of the continent, which is called the Dominion of Canada. This country, which is still a British colony, is a union of states, or *provinces*, like our United States.

The parts of
the continent
still held by
England

You observe, on Fig. 59, the large island of *Newfoundland*, off the extreme eastern coast of the continent. This also was kept by England and is still a British colony; but it has never joined the Dominion of Canada and has, therefore, a separate government.

Of course, where two countries lie side by side, as do Canada and the United States, there must be some line showing where one country ends and the other begins. Such a line is called a *boundary*. The boundary lines between the different nations are shown on Fig. 59 by broken lines. Point them out.

How the
boundaries of
these coun-
tries are
shown

In some parts you will see that a *natural boundary*, such as a river or a mountain range, has been chosen to separate neighboring countries. In other places the boundary does not follow any natural line, but is a straight line, cutting across rivers, lakes, and mountains. Examine the boundary of the United States to see how much of it is natural.

Fig. 59 is a map of North America showing the boundaries of the different countries, and the location of the largest rivers and cities. Such a map is called a *political map*. Trace the Mississippi River. Locate New York; San Francisco; Chicago.

The purpose
of political
maps



Fig. 60

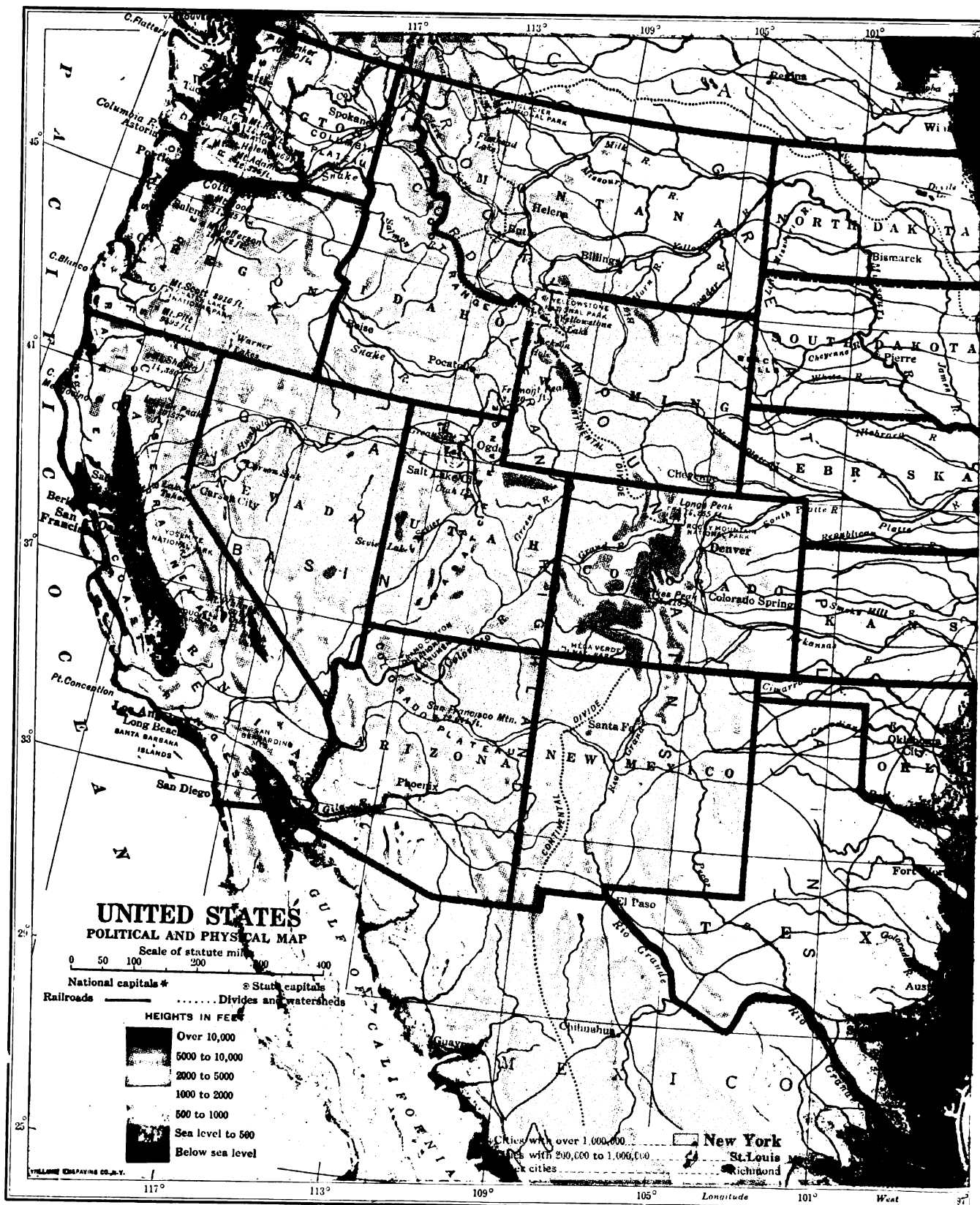


Fig. 61



Fig. 61

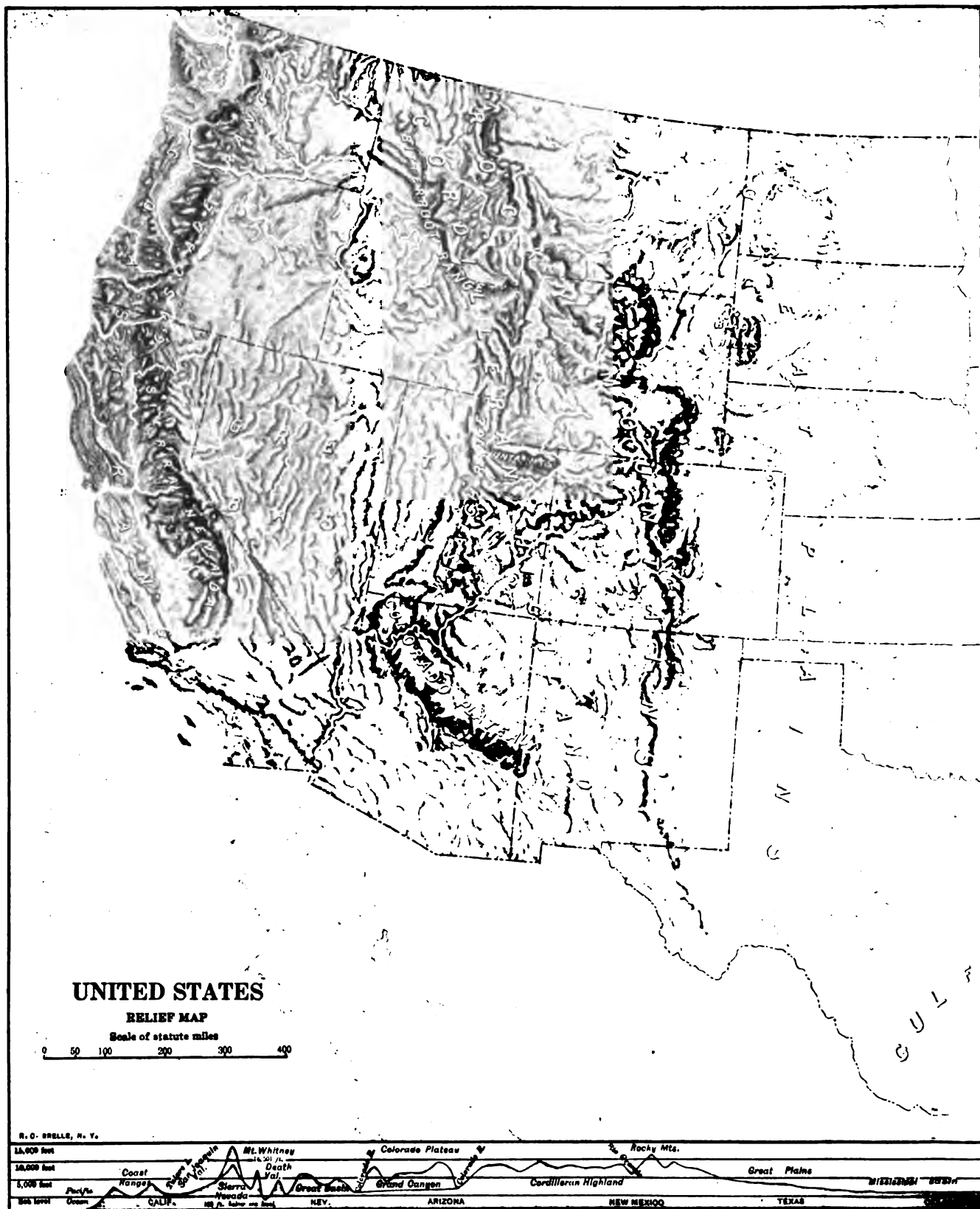


Fig. 62

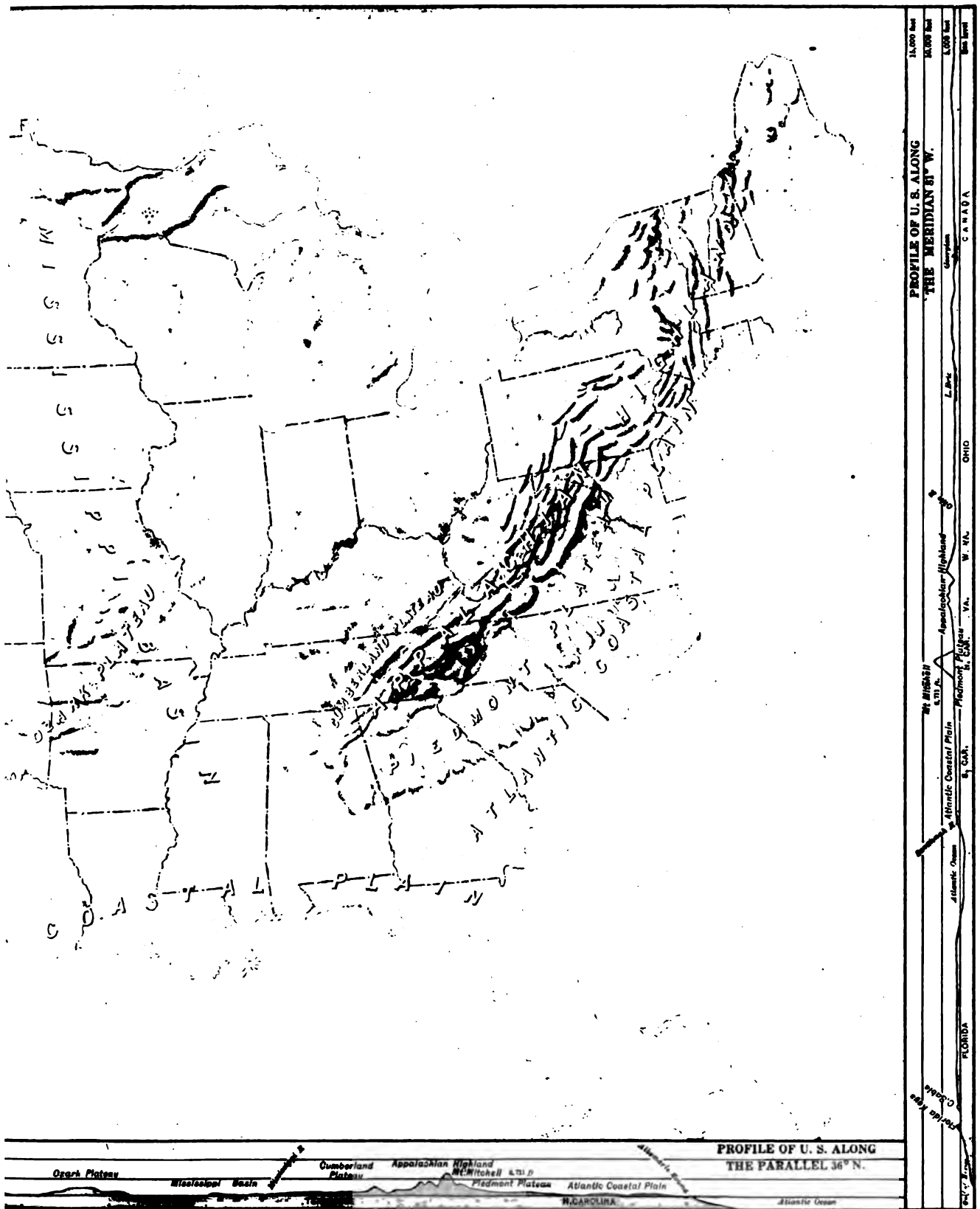


Fig. 62



Fig. 63



Fig. 63

Fig. 58, a *physical* map, is very different from Fig. 59. Its purpose is to show the height of the land, or the high and low parts of the continent by means of colors. Compare this map with Fig. 60, which will help you to understand the meaning of the different colors. Fig. 60 is called a *relief* map. It shows how the continent would look if the mountains were a great deal higher than they really are.

What great mountain system, or *highland*, do you find in the western part of North America? What great highland in the east? In what direction does each of these highlands extend? Which is the broader? Which is the higher? Trace, as nearly as you can, the boundaries of each.

Where is the lowest land between these two highlands? Show the length and width of the Mississippi Basin. Notice the slope east of the Appalachian Highland. Is it longer or shorter than that

west of the western highlands? What are the main slopes in North America? Upon which of these slopes or highlands do you live?

If you look at Fig. 59 you will see that its scale is about 675 miles to the inch. Knowing this fact, find how many miles it is across our country from north to south, measuring from our northern boundary to the mouth of the Rio Grande. Find the width of our country in an east-west direction, from New York to San Francisco. The United States is not quite so large as Canada. How does it compare with Mexico in size?

On Fig. 61, point out the highlands and slopes that are shown also on Fig. 58. Notice that this map is on a *larger scale*. Fig. 61 is both a *physical* and a *political* map, for it shows both the height of land and the boundaries of the states. What facts about our country are shown on Fig. 61 that are not shown on Fig. 63? Note how Fig. 62, a relief map of the United States, helps you to understand what the colors of Fig. 61 mean. Notice especially by comparing Figs. 61 and 62 that, except where there are mountains, highlands and lowlands shade into each other *gradually*. On the other hand, what other facts are shown by Fig. 63 but not by Fig. 61?

Physical maps do not show countries or states or cities. Political maps do not show the height of the land. *Physical* and *political* maps, however, show both.

In studying physical maps, or physical and political maps, you should pay careful attention to the key, to see which colors represent lowlands and which represent highlands.



Fig. 64.—New York City

1. Name the principal countries of North America. Write their names.

Review questions

2. In which country is Spanish the principal language? Why? 3. Why is English the principal language in our country? Why is some French still spoken in North America? 4. How did the United States come to be

formed? What parts of the continent does it include? 5. What parts of the continent are still held by England? 6. How are the boundaries of these countries formed? 7. Explain the purpose of political maps. 8. Of physical maps. 9. Of relief maps. 10. State some facts showing the extent of the United States.

II. THE NORTHEASTERN STATES

In Fig. 66 find New York City. Fig. 64 represents this city on a larger scale. Note how much land it includes, and, by using the scale of the map, estimate the length of the city north and south.

One of the first things that would interest a stranger there is the great number of people. If he enters

Things that would interest a stranger in New York City

1. The number of people

the city from the north, he soon sees long streets thronged with them. If he travels southward through it, he finds people everywhere, and at many points the crowds are as dense as those at a county fair. Likewise, if he crosses the East River and passes through the part of the city called Brooklyn, he finds just as many people there. By thus traveling about in all directions, he begins to understand what is meant by the statement that New York has nearly 6,000,000 inhabitants, and is the largest city in the world.

The great buildings are among the wonders of the world. Fig. 67 suggests

2. The size of the buildings

how much larger many of them are than those in small towns. Most of those in the picture are office buildings, used for business. The tallest one is the Woolworth

Building; it is fifty-five stories high. Fig. 65 shows the number and the size of the office rooms in one of the lower floors. Such a floor can accommodate about 200 persons. The higher floors are reached by express elevators that do not stop below the 27th floor. All together several thousand persons occupy this building.

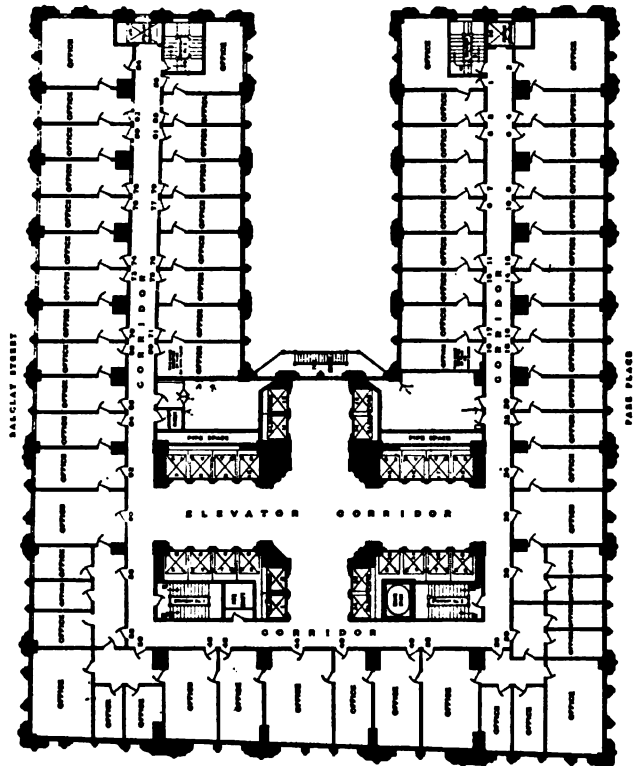


Fig. 65. — A plan of one of the fifty-five floors of the Woolworth Building

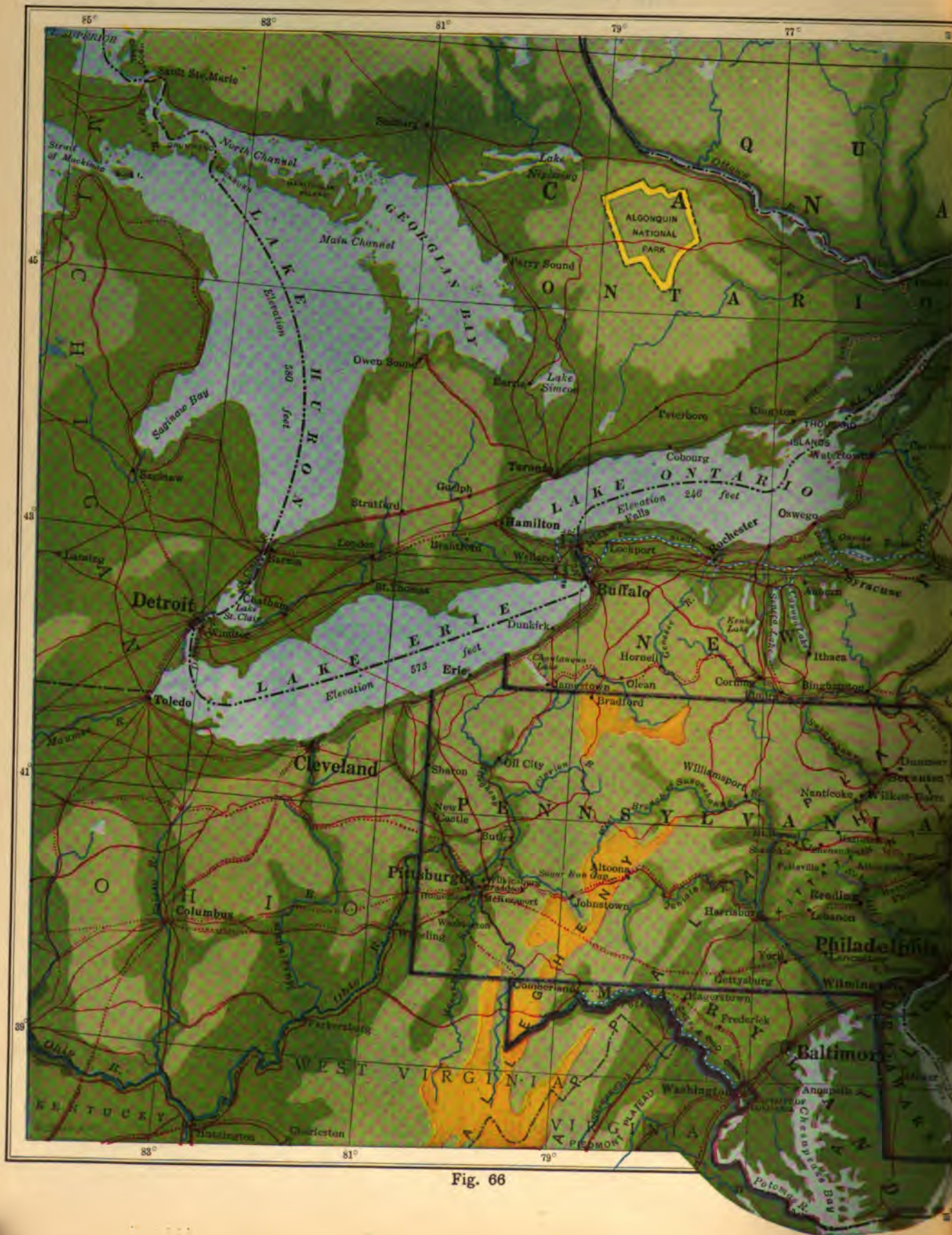


Fig. 66



Fig. 66

Some of the most important banks in the world are located in the southern part of Manhattan Island, a section of which is shown in Fig. 67. One such bank employs more than 2,500 persons; and there are others that employ nearly as many. The largest stores are found a little farther north on the island, and are usually from ten to twenty stories high.

only a part of one floor, called an *apartment* or a *flat*. Other families may live above and below, as well as on each side; they are separated from one another only by walls or partitions. There is usually little or no space between such buildings, and in the more crowded sections of the city a single block sometimes contains as many as 4,000 persons.



Fig. 67. — Manhattan Island from New York harbor

© Photographic Art Corporation

One of them employs more than 5,000 persons; and many employ 2,000 or more.

The buildings in which the people live are not usually separate houses; for a whole house for one family takes up too much room and is too expensive. Generally, many families live in a single building, called an *apartment house* or a *tenement*, which is so arranged that each family occupies

3. The kinds
of homes

What objections do you see to such homes?

To escape such crowding, tens of thousands of persons live outside the city, ten to forty miles from their places of business. Even those whose homes are in the city generally live a long way from their places of work. Hundreds of thousands, therefore, spend from one to three hours

4. Modes of
travel

traveling every day. Many ride upon street cars, busses, ferryboats, and steam railroads. Some use the elevated railroads, built in the street two, three, or more stories above the ground, and supported by steel columns. Others travel by underground railroads called *subways*, or pass through tunnels under the East River to Long Island, or under the Hudson River to New Jersey.

At about five o'clock in the afternoon the thousands of business places begin to pour their throngs into the streets; and for the next hour every street car, train, bus, and ferry is jammed with people. In the subway and elevated trains it is hard to get even standing room. Every morning there are similar crowds. Thus day after day the people travel to and fro. The crowding at these *rush hours* in New York City probably surpasses anything of the kind elsewhere in the world.

The scenes in the harbor are as interesting as those

5. Scenes in the harbor on land. Hundreds of ships from all parts of the world can be seen there at any time. Some are just reaching the city after weeks of travel from China, South America, and other distant lands; some are loading or unloading their freight and passengers at the piers; and others are just leaving on their way to foreign countries. Powerful tugboats are towing the large vessels to and from the docks, and many ferryboats are passing back and forth.

The principal business section of the city is on Manhattan Island, which is thirteen and one half miles long and two and one quarter miles wide at its widest part. The largest buildings are in its southern portion, and one gets some of the best views of the city by sailing around the island. Fig. 67 is a picture of the southern section as seen from the water. Mention some of the things of interest that you see in it.

How do so many people make a living? They do many different things. For example, more than 200 daily newspapers are published in the city and more than 1,000 weekly papers. Think of the number of persons kept busy gathering the news, printing it, distributing the papers, and attending to other parts of such a business! There are as many as 250 hotels,

How so many people make a living

1. The great variety of work



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Fig. 68. — A few of the ships in New York harbor

The small boat in the center of the picture is a *lighter*, which carries freight to and from the ships and thus saves the trouble of moving the large ships to many docks.

some of which have over 2,000 rooms and employ as many as 2,000 persons. There are about 22,000 teachers and not less than 1,000,000 young people going to school and college. Think how many grocery stores, drug stores, moving picture theaters, and restaurants there must be! Most of the kinds of work that are done elsewhere are going on here also. Can you name a dozen kinds that have not been mentioned?

While there are so many occupations, there are two that are especially important. One is transportation.

2. Why transportation is one of the leading occupations

a. Importance of transportation

The streets are so filled with trucks in many sections of the city that it is difficult to pass through them. In the harbor you may see whole freight trains containing goods being towed on flat boats, called *lighters*. On the docks many thousands of men, called *longshoremen*, are kept busy loading and unloading ships. Trains filled with freight from all parts of the earth are coming or going at all hours. More than 1,300 carloads of food alone are brought into the city every day. In all, probably not less than 200,000 men and women are employed in the city in the transportation of goods and passengers.

One reason for so large a number is the excellent location of New York on the Atlantic coast. The Atlantic is the busiest ocean in the world; for in Fig. 315 you see

b. Advantage of the location of New York

that to the east of it is Europe with its enormous population of 455 millions. Westward from New York our own country stretches out for 3,000 miles, with its many millions of people. In Fig. 63 read the names of the states that one

would cross in going directly west from New York to the Pacific coast. Name some of the cities one would pass through. Thus New York lies directly between great numbers of persons who trade with one another.

The excellent harbor is another reason for the importance of transportation in New York. Many coasts are so straight that there are no good natural harbors; but it is not so here. The Upper Bay, which you see in Fig. 64, is six miles long and five miles wide; this is large enough to shelter hundreds of vessels at a time from storms. The Lower Bay is larger still, and there are many other places within New York harbor where ocean vessels can anchor safely. Point out some of them.

The piers and docks are on just as grand a scale. On many coasts the waters are so shallow near the land that ships cannot come close to it; they must anchor a mile or more out at sea, where they are met by smaller boats that come to load or unload them. At New York, however, the largest vessels, which sink thirty or more feet into the water, can come directly to the piers along the shore, where they are met by trucks and wagons. Fig. 51 shows many ships resting at the piers in the Hudson River. The piers here extend along the shore in an almost unbroken line for several miles, and there are many more in other parts of the city.

How is the city connected with the country on its west? Fig. 62 shows many mountain ridges between New York and the Mississippi Basin. What are they called? Across what states do they extend? In

c. Excellence of the harbor

d. Ease of traffic with country on the west

the early days they were like walls in stopping the westward movement of settlers. Yet there was one easy route which soon became very important; that was the one leading up the Hudson River to Troy, and then westward between the Catskills and the Adirondacks. Locate these two mountainous regions. Between them the Mohawk River flows eastward into the Hudson. No point along this route is more than 500 feet above sea level, and it crosses no mountains whatever. It is so nearly level that a canal covering the whole distance from Troy to Buffalo, and known as the Erie Canal, was completed as early as 1825. The building of it was an important event for New York City, for it made it possible for freight to be carried by boat up the Hudson to Troy; then through the canal to Buffalo; then to any point on the Great Lakes as far west as Duluth. Trace this route in Fig. 61 and estimate the distance from New York to Duluth. Since it was much cheaper to haul goods by water than in any other way, the city gained an advantage for trade with the West that no other Atlantic port has ever had. Later the New York Central Railroad was built along the same route to Buffalo. Many other roads now run from New York northwest, west, and southwest; these do not avoid the mountains but cross them by means of steep grades and tunnels.

New York City is, therefore, the principal gateway between countries across the Atlantic and the United States. Nearly half of all goods brought into the United States enter at this gate; and more than a third of all that we send abroad

go out the same way. In fact, New York is the greatest port in the world.

All the goods that come or go must be transferred at this point from ocean vessels to smaller boats or trains; or from all these to warehouses and stores in the city itself. It is largely because this work keeps so many persons busy that transportation is one of the chief occupations in the city.

The other occupation that is especially prominent is manufacturing. Any place that enjoys great advantages for transportation of freight is likely to be an important manufacturing center, because manufacturing depends so much

3. Why manufacturing is especially important



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Fig. 69. — A lock in the New York Barge Canal

This canal follows in general the route of the old Erie Canal, which was completed in 1825. On the right is one of the small locks of the Erie Canal. Trace the route of the Barge Canal across New York state (Fig. 66).

upon the ease with which the materials that are to be made over into manufactured articles can be collected and finished articles can be shipped away.

The amount of manufacturing depends also upon the supply of workmen. New York is very fortunate in this respect. Most of the hundreds of thousands of people who come from other countries to the United States each year enter by way of New York. At Ellis Island, in the harbor, the new arrivals, called *immigrants*, land and are examined by government officers to see whether they shall be permitted to remain in this country. Fig. 70 shows a group of such immigrants. Many, instead of proceeding farther, remain in the city; in fact, about two fifths of all the inhabitants of the city were born abroad. These foreigners have helped greatly to supply the factories with workmen.

New York, therefore, manufactures thousands of different kinds of articles, from ink for newspapers to steam engines

and steel ships. The value of its manufactures is about one tenth of the total value of those of the United States. Among the immigrants in the factories are a great number who specialize in the making of clothing. Partly for this reason, the manufacture of ready-made clothing is the largest manufacturing industry. Probably not less than 200,000 persons are engaged in it, and nearly one half of all the ready-made clothing for both men and women in the United States is made in this city.

In New Jersey, just across the river from New York, is another vast population. Newark (Fig. 66) contains more than 400,000 inhabitants, and Jersey City over 300,000. There are five other cities about the harbor in New Jersey that average more than 50,000 each.

How cities about New York and others southwest of it compare with it in advantages for transportation

Within fifteen miles of Manhattan Island are more than 7,000,000 persons. What portion of the entire population of the

United States does this number make (p. 311)? All these cities use the same harbor and therefore enjoy much the same advantages for transportation as New York; in fact, they are practically a part of that city. Make a drawing of New York harbor showing all the large cities upon it.

Only ninety miles southwest of New York is Philadelphia (Fig. 66), the third city in size in the United States. With its neighboring cities of Camden, Trenton,



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Fig. 70. — Polish immigrants at Ellis Island

and Wilmington, it contains a population of more than 2,000,000. Locate these places. The secret of their growth is seen partly in the fine harbor formed by



© Ewing Galloway

Fig. 71. — Independence Hall, Philadelphia

This is the birthplace of our country. Can you tell why?

the Delaware River. Trace its course from the Catskill Mountains. Do you see any reason why it is not likely to equal the Hudson River in importance for the transportation of goods?

About ninety miles southwest from Philadelphia is Baltimore (Fig. 66), the eighth city in size in our country. Its location so far inland brings it many miles nearer the states west of the Appalachian Highland than Philadelphia or New York; and since it owes its impor-

tance partly to trade with the West, this is a great advantage.

In Fig. 150 you can see that many of the same railroads that connect New York with the West and Southwest pass through Philadelphia and Baltimore; but they lack the water connection with the Great Lakes, and their trains going west must climb 2,000 feet to get over the mountains. How are these facts serious disadvantages?

215 miles northeast of New York is Boston (Fig. 66). It is itself the seventh city of the United States in size, but with Cambridge and other cities close by has a population of more than a million. Here also, the fine harbor partly explains so large a number of inhabitants. For a long time, high hills in western Massachusetts

How Boston and the cities about it compare with New York in advantages for transportation.



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Fig. 72. — The Old North Church, Boston

blocked their trade with the West, just as the Alleghenies (Fig. 66) blocked it for Philadelphia and Baltimore. Name the highland found there (Fig. 66). Railroads were finally built across it, and



Courtesy of Keystone Coal and Coke Co.

Fig. 78. — Mining coal by modern methods

Notice that machinery is used to loosen the coal. This miner carries his light with him, on his cap.

Boston is now connected by rail with Albany. Estimate the distance to Albany. Thus Boston gets some benefit from the Mohawk route. Can you show how?

Just as the great Atlantic ports are the principal gateways between Europe and

the United States, two other cities in the Northeastern States are gateways between those ports and portions of our country lying farther west. These are Buffalo and Pittsburgh (Fig. 66), which are also among our largest cities (p. 311).

Buffalo is on the route from New York

City westward at the point where goods going east or west by water must be transferred from one kind of boat to another. It is the point, also, at which many goods are transferred from rail to boat, or from boat to rail. That gives its harbor great importance.

In Fig. 66 you see that Pittsburgh is located in western Pennsylvania at the point where the Allegheny and Monongahela rivers unite to form the Ohio River. Since the Ohio flows into the Mississippi, this location connects Pittsburgh by water with all parts of the Mississippi Basin. In Fig. 61, show some of the more distant places that can be reached from Pittsburgh by boat.

These two cities are also on the routes of the principal railroads running from the Atlantic coast to Chicago, St. Louis, and other points in the North Central and Western states. Therefore, most of the freight bound from the Atlantic coast to these western sections, or from them to the Atlantic coast, passes through one of these cities.

While the many cities that have been named differ greatly in size, and while all the others taken together have a smaller population than that around New York harbor alone, they all resemble New York in two very important

**Two ways
in which all
these cities
resemble
New York**

respects. In every one of them transportation of goods and manufacturing are the leading industries. Indeed, the Northeastern States, in spite of their small area, are the principal manufacturing section of the United States; they make nearly one half of all the manufactured goods that our country produces.

**The relation
of Buffalo and
Pittsburgh to
the Atlantic
coast cities in
transportation
of goods**

Why do the Northeastern States manufacture so much? It is largely because of the coal in Pennsylvania.

The influence of Pennsylvania coal Let us see how this can be true.

1. Signs of coal seen by the traveler The traveler in that state sees many signs of coal. In numerous cities there are great numbers of coal miners in the streets at certain hours of the day. They can be recognized by the coal dust upon them, and by the dinner pails that they carry. In certain sections one sees by the roadside in the hills and mountains openings that are tunnels leading to coal mines. Now and then thin layers of coal show in steep hillsides or cliffs, and occasionally a small coal mine for private use is found on a farm or even in a back yard.

Many mine openings that extend directly downward into the earth are surrounded by ugly mounds of waste coal and rock, called *culm*, that have been thrown there because there was no better place for them, and that serve as reminders of what is going on underneath. Many cars filled with coal are included in almost every freight train. In weight, the coal from Pennsylvania makes about half of all the freight hauled by railroads in that state.

Two kinds of coal are mined extensively. One is *anthracite*, or hard coal, which is found in the eastern part of the state about Scranton and Wilkes-Barre. These are called

2. Kinds and quantity of coal mined

coal cities because their principal interest is in coal. About 90,000,000 tons of anthracite are mined in eastern Pennsylvania each year, which makes that region the greatest center for anthracite coal in the world.

In the western part of the state, south of Pittsburgh, *bituminous*, or soft coal, is mined. Nearly twice as much bituminous as anthracite is produced each year in Pennsylvania, or 160,000,000 tons. All together, not less than 300,000 men are employed underground in Pennsylvania, and that one state mines about as much coal as all our other coal-producing states combined.

Without this coal, neither transportation nor manufacturing could flourish as they do; for it supplies the heat that produces steam, and steam is what turns the wheels of most locomotives and factories. Oil and gas, both of them obtained from underground, take the

3. How this coal compares with other fuel and water power in importance



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Fig. 74. — Horseshoe Falls, a portion of Niagara Falls

place of coal to some extent; Pennsylvania and New York produce a good deal of each. Water power, also, can take the place of coal. Niagara Falls, for example, furnishes power for cars

ings, and heavy cannon. Most of the great cities in these states are distinguished for the manufacture of one or more kinds of such heavy articles, Pittsburgh

1. Kinds of iron and steel manufactures in Pennsylvania and states near it, with the explanation

most of all.

One cause for this is the fact that a great abundance of coal is near at hand. Another is that iron ore, from which iron and steel are made, can be obtained easily. A little of it is mined in New York and Pennsylvania, but most of it comes by way of the Great Lakes from Minnesota. This is a long distance, but the fact that it is brought most of the way by water makes the transportation cheap.

The group of six states to the east of New York



Courtesy of National Tube Co.

Fig. 75. — A steel mill in Pennsylvania

and factories more than a hundred miles distant from the falls themselves. Yet coal is the principal source of power for running machinery; and on that account it is largely the Pennsylvania coal that leads these states to manufacture so extensively.

While Pennsylvania, New York, New Jersey, Maryland, and Delaware make

The differences among the states in manufacture of iron and steel goods

almost every kind of manufactured goods, by far the most prominent manufacture is that of heavy articles made of iron and steel, such, for example, as steel ships, engines of all sorts, rails, stoves and furnaces, elevators, cars, bridges, automobiles, heavy machinery, steel beams for large build-

State, called *New England*, carries on a very different kind of metal manufacture.

This region is noted for its tools, knives and forks, fire-arms, locks, screws, needles and pins, clocks, watches, jewelry, and other light articles made of metal. Perhaps you see one reason for the difference. These states produce neither iron nor coal, and since it is expensive to transport both materials so far, articles are manufactured that require very small quantities of coal or metal.

2. The kinds of metal goods made in New England, and one reason for the difference

New England is noted for other manufactures, also. While it mines no coal, grows no cotton, and raises few sheep or beef cattle, it is the most important region

in the United States for the manufacture of goods made of cotton, wool, and leather.

Why cotton, woolen, and leather goods are especially important in New England

1. Where these manufactures are carried on

The other states in this group have some factories for the making of *textiles*, or cloth goods; indeed, Paterson in New Jersey is the leading center for silk manufacture in our country, and Philadelphia is noted for rugs and carpets; but these more western states work very little with textiles compared with southeastern New England. Most of the cities in the latter region are engaged in the cotton, woolen, or leather industry. They produce such articles as thread, muslin, calico, cloth for men's and women's suits, stockings, underwear, shoes, pocketbooks, leather bags, and harness. Many of them are engaged in two of these industries, and some in all three. This is true of all the larger cities in southeastern New Hampshire, eastern Massachusetts, and Rhode Island. Name and locate some of them (Fig. 66).

How did they come to undertake such manufacturing when they lack fuel and

2. How these industries got a start in New England

even the raw materials for manufacture? The answer is found partly in the history of the people. The early settlers of New England, being a long way from Europe, and having no one else to depend upon, had to make most of the things they used, such, for example, as clothing and shoes. In that way they became skilled workmen. Later, when other parts of the country also needed such articles, they began to build factories, making use of their abundant water power to run them. Then new immigrants from Europe went into these factories, rather than to the farms;

thus a large supply of skilled labor was obtained. In this way New England got an early start in these kinds of manufacturing. There are, to be sure, many natural disadvantages. The inhabitants must depend more upon coal than upon water for power, since the rivers are irregular in their supply; and the raw cotton and most of the wool and leather must be brought long distances. Yet they have been able to hold their own. Their one great advantage is their large number of workmen highly skilled in the manufacture of such products.

On what river is Washington located (Fig. 66)? Perhaps some day you will visit that city. What would you expect to see there? It is one of the most attractive of all our large cities. Since it is the

Attractions of the city of Washington



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Fig. 76. — A New England clock factory

capital of our country (p. 30) and therefore interested mainly in government, it does not have the many factories, the



© Manufacturers' Aircraft Assn.

Fig. 77. — The Capitol at Washington

factory workmen, or the street traffic that other large cities have. Also, the principal buildings are not places of business but government buildings. The most important is the Capitol (Fig. 77), in which our Congress meets. Another of special interest is the White House (Fig. 31), in which the President lives. There are dozens of others also, because the work of carrying on the government requires offices for a great many men and women.

Most large cities have followed no definite plan as they have grown; but the arrangement of the streets and buildings in Washington was planned from the beginning. Its site furnishes some magnificent views across the Potomac River; its streets are especially broad, parks and monuments are very numerous, and trees are

far more common than in any other large American city.

While more people in the world are engaged in farming than in any other single occupation, farming is not carried on in these states on as large a scale as in the other sections of the country. In fact, only one person in four here lives in the country. There is plenty of rain for agriculture, and the

Difficulties
of farming in
these states

temperature is mild enough, but much of the land is hilly or mountainous. In Fig. 66 locate the principal mountain groups and ridges. In what directions do the highlands extend? What are the names of the principal ranges in Pennsylvania? In New York? In New England?



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Fig. 78. — An apple orchard in blossom in New York State

Point out the more level sections. Even in sections where there are no mountains, however, some of the land is so hilly and rocky that it cannot be cultivated.

In spite of these difficulties, farming is an important industry in some parts of these states.

Fruit is extensively cultivated in several sections.

For example, apples (Fig. 78), peaches, pears, plums, and grapes are grown in western New York and Pennsylvania and in southern New Jersey and Maryland, where the climate is made mild by the waters near by. Tobacco, also, flourishes in the lower Connecticut Valley, in Massachusetts, and in Connecticut. But there are two kinds of farming that are especially prominent. One of these is truck farming.

In so rough a country farming on a large scale is impossible; the land is cut up into small fields, with patches of woodland here and there. Many of these fields, however, are very fertile, and the most common products are those fruits and vegetables that find a ready market in the nearby cities. Some of these are tomatoes, potatoes, lettuce, onions, beans, peas, corn, cabbages, and berries; growing such food is called *truck farming*. Can you tell how the farmer raises some of these things?

Where there are so many great cities, an immense quantity of milk is wanted;



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Fig. 79. — A dairy farm in New York State

for everyone uses milk in some form. Much of the land is so rocky and rough that it cannot be plowed, and can therefore be used only to raise grass for cattle. For such reasons, dairying is a very great industry in these states. It occupies much more of the land than truck farming.

Anyone who travels through these states finds dairy farms on every hand. The surest sign of a dairy country is a number of cattle grazing on a hillside or drinking from a brook; and they afford one of the prettiest sights that one gets from a train. Most of the cattle look well kept and clean, for they are regularly washed and brushed. Can you tell why they receive so much care?

Fig. 79 shows some of the buildings that are necessary. Tell what you see there. These buildings are very neat indeed; they must be ventilated and kept almost as clean as a house.

Besides grass and hay, the farmer

1. Extent
of truck farming

2. Extent of
dairy farming

a. Meaning of
a dairy farm

usually grows corn and some turnips or other vegetables for his herd. There is so little hot weather here in summer that it is difficult to ripen the corn as fully as it ripens in states farther west. Yet the

While the land in these states supplies only a small part of the food needed, the ocean furnishes a very large amount of food. Some of the most common kinds are cod,

Importance of sea food and the methods of getting it

halibut, mackerel, herring, bluefish, oysters, clams, lobsters, and crabs.

Fish used to be abundant close to shore; but so many have been caught there that fishermen now have to go far out to sea to catch cod, halibut, and mackerel. The vessels used are powerboats, driven by gasoline, or sailing vessels called *schooners*; hundreds sail from Gloucester in Massachusetts every year, and they are often gone for weeks at a time. Can you imagine



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Fig. 80. — Oyster boats at the wharf, Baltimore

green stalks make excellent feed for the cattle when cut up into bits and stored in the round building, called a *silo*, like the one shown in Fig. 79.

Entire trains of milk are a common sight at village railroad stations in these states. This milk may be hauled 200 or even 300 miles before reaching the city for which it is intended. There it is delivered to the houses, the milkmen beginning their rounds as early as two or three o'clock in the morning. Can you imagine some of the suffering that would follow in the cities if a milk train were wrecked, or if snowstorms should block all trains for two or three days at a time? In hot weather, what prevents the milk from souring before it can be delivered?

b. What is done with the milk

some of the dangers the men meet? Also some of the conversation in their families during a heavy storm on the New England coast?

One of the most interesting industries along the coast is the production of oysters. They are found all along this coast; but Chesapeake Bay produces more than any other section in the world. Baltimore is the center of the oyster trade, just as Boston is one of the chief fish markets of the world.

About one half of the oysters obtained in Chesapeake Bay come from *oyster farms* that are cultivated with as much care as farms on land, although in a very different way. It seems strange to speak of cultivating farms that are entirely under water; but there are thousands

of such farms along our eastern coast; and many of the words used in connection with their cultivation remind one very much of ordinary farming. The young oysters are planted, they have to be fattened, the harvest is spoken of as the crop, and they are sold by the bushel. The oyster farmer starts out to work, however, in a boat, and there are many other differences from farming on land. Can you suggest some of them?

1. How would you make clear to a stranger what a vast number of people there are in New York City?

**Review
questions**

2. State facts showing the size of some of the buildings. 3. Explain what kind of homes the people have. 4. What are some of the difficulties of travel? 5. Describe scenes in New York harbor. 6. Give an idea of the variety of work, and the importance of each kind. 7. Show how extensive transportation is in the streets and about the harbor. 8. Explain the advantage of the location of New York. 9. The excellence of the harbor. 10. The ease of traffic with the country on the west. 11. Why is manufacturing especially important? 12. Name large cities west and southwest of New York, and compare them with that city in advantages for transportation. 13. How does Boston compare with New York in such advantages? 14. Locate two large cities in the interior and explain their importance for transportation. 15. How do these great cities all resemble New York? 16. What signs of coal in Pennsylvania are seen by the traveler? 17. What kinds of coal are mined there, and how do they compare in quantity? 18. How does the coal compare with other fuel and water power

in importance? 19. State the principal kinds of iron and steel goods manufactured in Pennsylvania and the states near it, and give the reason. 20. How are the iron and steel manufactures of New England different from those of Pennsylvania? Why? 21. Why are cotton, woolen, and leather manufactures especially important in New England? 22. Mention some of the attractions of Washington. 23. Explain the difficulties in the way of farming in the Northeastern States. Describe the surface of this section. 24. State the importance of truck farming. 25. The extent of the dairy industry. 26. Describe a dairy farm as fully as you can. 27. What is done with the milk? 28. Show the importance of fishing in these states.

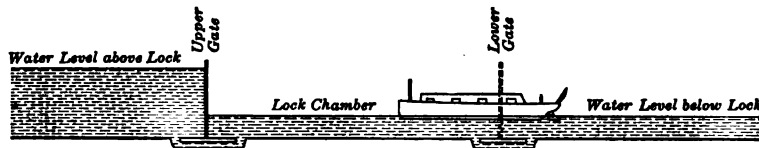
1. Many visitors go to the top of the Woolworth Building. Describe some of the views that you think you would have there. 2. Make a drawing of this part of the Atlantic coast, showing the principal harbors and the leading cities upon them. 3. How can a canal be kept full of water where the land is not level? 4. Make a drawing of the Erie Barge Canal and include the principal cities upon it. 5. Visit a fish market, to see some of the kinds of fish mentioned in the text. 6. Make a list of the names on the map that begin with *New*. How can you explain such frequent use of this word? 7. Write the abbreviation for each of the states in this group. 8. Try this game: With scissors cut out pieces of paper—without looking at the map—as nearly the shape of each state as possible; then see if other persons can recognize the state each time intended.

**Suggestions
for extra
work**

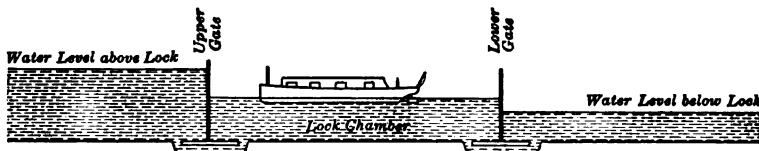
On the voyage north you have Bay City and Saginaw, at the head of Saginaw Bay, on your left, and you finally pass Alpena. Not many years ago this part of Michigan was thickly wooded, and these towns were noted centers for lumber. The numerous rivers that

furniture is sold extensively in New York as well as Chicago, and even in Europe and South America. The industry was started when hardwood forests near by were extensive and has continued to grow because of this early start, although now a large part of the lumber must be brought from other regions.

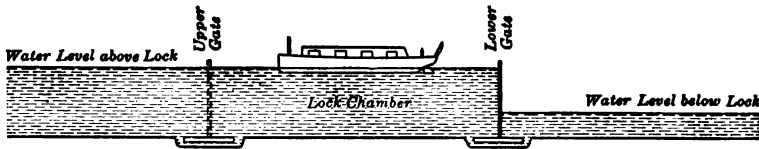
While there is still valuable maple, beech, and birch timber in Michigan, the greatest forests have been destroyed. In some sections dead trees and stumps are the most prominent objects. The houses, made of logs or of rough boards covered with tar paper, stand in little clearings surrounded by these sad reminders of the past. Here are the beginnings of farming; potatoes and other vegetables, some grain, and a few animals are raised on each farm. In such places life is lonely; schools are far apart; and not many



A. The lower gate is here swung aside, and the boat is entering the chamber.



B. The lower gate is here closed and water is entering the chamber and lifting the boat.



C. The water in the chamber is now on the same level as the water above the lock. The upper gate has been swung aside, and the boat can move out of the chamber.

Fig. 84

empty into Saginaw Bay brought down logs to scores of sawmills there; if you could have gone there at that time, you might have witnessed many exciting scenes in the woods and on the rivers. Can you describe some of them?

Lumber was shipped from this region to many Eastern cities; and many industries dependent upon lumber sprang up here. For example, southwest of Saginaw is Grand Rapids, which became the greatest center for the manufacture of furniture in the United States, and still holds that rank. Grand Rapids

of us would like such surroundings. Yet the grandparents of many of our boys and girls settled in just such a region when they "went West."

Fig. 86 shows that Lake Huron is twenty-three feet lower than Lake Superior. St. Mary's River, which connects the two lakes, is very shallow in places, especially at St. Mary's Falls. Canals are the only means by which our large steamer can get past the falls; and the traffic is so great that there are now four canals on the American side and one on

5. What one may see at the Soo Canals

the Canadian, the five together being known as the Soo Canals. They are kept busy, day and night, from early spring to late fall.

A day spent in watching the vessels go through the canals is full of interest. One soon learns how the locks lift the boats on their way "up lake," or lower them on their way "down lake" (Fig. 84). The ease with which they work is wonderful; the turn of a wheel or the movement of a lever controls the electricity by which the gates are moved and the water that raises or lowers the vessels is let in or out.

Perhaps of more interest are the boats themselves and the freight they carry. The "down lake" boats contain mainly iron ore, grain, lumber, and copper. The "up lake" boats are loaded with coal, dry goods, groceries, house furnishings, clothing, machinery, automobiles, and other manufactured articles. Notice that there is a much greater variety of goods going west than east. Can you see the reason for this?

Now we can begin to discover where some of the things have come from that we have been passing all along the route from Buffalo. Some of the iron ore is shipped from Marquette, which you can find in Fig. 86. Beyond this city we come to a peninsula that is noted for copper. In what state is this peninsula, and what is its name (Fig. 86)? A waterway, partly natural

and partly a canal, allows our steamer to cross it instead of going around; and this is the more interesting route, for at some of the stopping places one is likely to see great piles of copper bars upon the piers ready for shipment eastward. Can you tell some of the uses of copper? What towns do you find on the peninsula (Fig. 86)? They are noted mining centers for copper.

The end of the voyage is reached at Duluth or Superior. The two cities are so near together that they might well be one, were they not in separate states. Name the states.

7. What a visitor would see in and about Duluth and Superior

Here is where most of the boats were loaded that we have passed day after day on this westward trip. There is still much lumber west of the lake and there are several sawmills in these cities. Still farther west the chief product is wheat; these two cities are the nearest points for shipping it east by water. The

6. Location of the iron and copper mines south of Lake Superior



Fig. 85. — An open pit iron mine in Minnesota

The railroad tracks that you see are moved from time to time as the sides of the pit are cut away.



Fig. 86



Fig. 86

elevators should be visited, for they are among the largest in the world.

The thing of greatest interest, however, is the iron ore. Most of this ore, which is so important for the manufactures of the



Fig. 87. — One of the many coal docks at Duluth

Coal is brought by lake vessels from Lake Erie ports to Duluth. Here it is unloaded by means of the "clam shells" shown in the picture, each of which can scoop up five tons or more of coal at a load. Railroads carry the coal from these docks to the various parts of Minnesota and the Dakotas.

Northeastern and North Central states, comes from about Lake Superior; and the most valuable mines of all are northwest of Duluth near Hibbing and Virginia. They are even more important than those near Marquette.

Much of the ore comes from open pits where enormous scoops lift five to ten tons at a time into cars that carry it to Duluth, Superior, or Two Harbors for shipment (Fig. 86). The trains run out on high trestles and drop their ore into great bins or pockets, from which large pipes or chutes let it fall into the holds of vessels. How extensive would be the suffering in the East if the iron mines about Lake Superior stopped producing ore? What city would suffer most?

The many articles brought west are unloaded in these two cities, the most important being coal. No coal is mined within hundreds of miles of these cities; yet, as the winters are severe, a vast amount is needed. The coal docks are as interesting to visit as the ore docks. Can you imagine what becomes of the furniture, clothing, and hundreds of other things that are unloaded here?

The distance from the Soo Canals to Chicago is about the same as that to Duluth, but the things that interest one on the way are very different. If we travel southward near the east shore

8. The voyage southward from the Soo Canals to Chicago

of Lake Michigan, we see thousands of houses built on sand hills from 100 to 400 feet high, called *sand dunes*. These dunes have been formed by the winds blowing sand up from the beach. They make cool places for summer homes.

In the ports along the east shore great quantities of fruit are found any day during summer and fall; there are berries, peaches, apples, and grapes, the kind varying with the season. One is likely to see, also, some of the Grand Rapids furniture which, like the fruit, is on its way to Chicago.

Along the west shore there are few dunes or summer resorts, and little fruit is grown. The direction of the winds across the lake is the chief reason for this difference. Can you explain how winds can have so much influence?

When we have come as far as Milwaukee, we see large boats traveling east or west across the lake carrying freight cars. The east-bound cars are likely to be filled with corn, oats, flour, and farm machinery, which are taken across the lake for

their further trip by rail. The west-bound cars are likely to be filled with manufactured goods from the East. What reasons can you see why such goods should take these routes? Why are they carried across the lake in freight cars rather than in vessels in the usual way?

Long before the harbor of Chicago is reached, the buildings of the city can be seen. The city extends for nearly thirty miles along the shore, and smaller towns to the north and south increase the stretch of buildings to fifty miles.

We have seen several large cities on this voyage. What are their names? Locate each. Chicago is nearly as large as all of them together; and as we approach the city we wonder why so many more people have collected here than in any of the other places.

Each of these cities enjoys transportation on the Great Lakes, but Chicago has great advantages over them all. Fig. 61 shows that Lake Michigan extends far south toward the heart of the United States. East and northeast of the southern end of the lake are many states, including nearly all of New England and New York, a part of Pennsylvania, and much of Michigan. West and northwest of the lake is about one fifth of the entire area of the United States. Name

the states there. Both people and freight going by land from one of these sections to the other must pass around the head of the lake; and as these two parts of our country contain a good share of our population and wealth, a large number of railroads must follow this route. Thus you can see that there is reason for a large city somewhere in this neighborhood.

The Chicago River, a little to the northwest of the southern tip of the lake, fixes the exact location, because its mouth forms a small but good harbor (Fig. 88). That is where Chicago began, and it has kept growing as more and more railroads have reached it. There are now thirty-four of them; and their total mileage is one half that of all the railroads in the United States. Anyone traveling

Why Chicago is the largest city in the North Central States

1. Advantages of its location for transportation



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Fig. 88. — Halsted Street Bridge, Chicago

Where bridges are built across navigable rivers, some arrangement must be made for the passage of boats. Some bridges have spans that turn, others are lifted up at one end and are called jackknife bridges. In this bridge the center span is lifted.

from one of our coasts to the other may go by way of St. Louis or New Orleans; but he is more likely to go by way of Chicago. Chicago is, indeed, the greatest railway center in the world; trans-



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Fig. 89. — Michigan Avenue, Chicago

Along this avenue are some of the tallest buildings of Chicago, though the busiest streets are a little to the west. In this picture you are looking southward. On the left is Grant Park. Lake Michigan lies beyond it, outside the limits of the picture.

portation is, therefore, one of the great occupations of the city.

It enjoys another peculiar advantage for transportation; for every one of these roads has its terminal here. Distances in our country are so great that a break in transportation seems to be necessary somewhere, and since Chicago is so near the center of the densely populated part of the country, the break takes place at this point. At any rate, whether one is traveling east or west or north or south by way of Chicago, one changes cars in

order to continue one's journey. On this account, transportation of passengers, baggage, and freight is an especially important occupation within the city.

These remarkable advantages for transportation naturally make Chicago a large manufacturing center. But there are other reasons for manufacturing here. We have seen that there are valuable copper mines and some of the richest iron mines in the world about Lake Superior; and the lakes make it possible to transport these products at small cost to Chicago and vicinity.

Coal is the next thing to consider. There are extensive beds of soft coal in this region, near Chicago. Some coal reaches Chicago from Pennsylvania by water and rail, but most of it comes from the mines in Illinois.

Although an enormous amount of iron and steel is made about Chicago, little of this work is done in the city itself. Looking southeast from the harbor on a dark night one can see a great glow as if a volcano were in eruption. The light is caused by the steel mills at South Chicago and at Gary in Indiana, the latter city being thirty miles away. Great quantities of iron and steel are used in manufactures in Chicago itself; the Pullman passenger and sleeping cars are manufactured there, and a large share of the agricultural implements of the world, as well as many other kinds of metal objects.

Another reason for the wonderful growth of Chicago is its location in the midst of one of the most extensive and fertile farming regions in the world. Grain is the leading product. The city

2. Advantages
of its location
for iron and
steel manu-
facture

stands on the northern edge of the Corn Belt, which extends from western Ohio to eastern Nebraska and Kansas. The principal crop northwest and southwest of this belt is wheat; other grains extensively cultivated in this section are oats and rye. As a result, Chicago is the greatest grain market in the world.

Where corn flourishes, cattle and hogs are common; for corn is the feed that fattens both. For this reason, Chicago is the greatest stock market in the world; many trainloads of cattle, hogs, and sheep arrive there every day. Most of

3. Advantages of its location for manufacturing and shipping farm products

The great rivers in these states, as well as the Great Lakes, furnish routes for the shipment of goods; and they have an important advantage over the lakes, because they flow through the heart of the country, while the lakes are on its northern edge. On Fig. 86 trace the Mississippi River from its source to southern Illinois. What states does it border? What states does the Missouri River cross or border? The Ohio River?

How the leading river cities compare in size with those on the lakes

Many important cities grew up on these rivers when river transportation was more important than it is now. The larg-



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Fig. 90. — Steel mills at Gary

In which buildings is the steel made? Which are office buildings? In which buildings do you think the workmen or officials live?

the animals are slaughtered at the Union Stockyards; for this city is likewise the greatest center for meat packing in the world. The extent of this industry is shown by the fact that the average number of hogs slaughtered here each day during the last twenty years is about 20,000.

est of these was St. Louis. Its location on the Mississippi near the mouths of the Missouri and Ohio rivers connects it by water with points hundreds of miles distant in any one of four directions. On Fig. 61 show what these four directions are. In spite of this advantage, St. Louis is less than one third as large as Chicago.

Another large river city is Cincinnati, in the southwestern corner of Ohio on the Ohio River; yet it is much smaller than Cleveland. Other large river cities are Minneapolis and St. Paul, on the upper

of St. Anthony in the Mississippi River take the place of coal by supplying these cities with a large amount of power for manufacturing.

The chief disadvantage of the river



Fig. 91. — Upper dam, Falls of St. Anthony

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Where streams are dammed to produce power, it is not the water that flows over the dam that is used, but water that flows swiftly through pipes from a higher level to a lower at one side of the dam. This falling water is used to turn wheels that make, or *generate*, electricity.

Mississippi in Minnesota; yet these two cities together are smaller than Detroit. Another river city is Kansas City, in Missouri on the Missouri River; yet it is much smaller than Milwaukee. Locate all these cities on Fig. 86. The fact that the lake cities are so much larger than those on the rivers suggests that the latter are at a disadvantage in some way. Let us see what this is.

All these cities are benefited greatly by the surrounding farmlands. The two groups enjoy nearly equal advantages also for coal. Minneapolis and St. Paul are farthest from coal mines; but the Falls

cities is the fact that they are not well situated for iron and steel manufacture. The great supply of iron ore to the lake cities, at a low cost for transportation, has led to enormous manufactures of metal goods. It is much more expensive to haul the ore from the mines to the river cities by train, or by train and river, and on that account iron and steel manufactures are much less developed there. This is probably the leading reason why the river cities are smaller than the others. The only large river city noted for the manufacture of iron and steel goods in the North Central States is Cincinnati.

The chief disadvantage of the river cities

In the Northeastern States the farms produce fewer raw materials for manufacture; and the foods that they supply, such as milk, butter, vegetables, and fruits, meet only a small part of the needs of the dense population. In the North Central States, however, the farms not only produce far more food than is needed in those states, but they supply vast quantities of raw materials for manufacture. This is an important difference between the two groups of states.

Minneapolis, being near one of the greatest wheat sections in the world, has become a great wheat market and flour center. It has fifty enormous elevators for grain, and its flour mills can produce 75,000 barrels of flour each day. St. Paul, beside being a center for distributing dry goods, hardware, shoes, and other articles among the farming sections, has extensive stockyards and packing houses. Minneapolis as a grain market reminds one of Chicago, Milwaukee, and Cleveland; while St. Paul, in the importance of its stockyards and meat packing, reminds one of Chicago, Kansas City, Omaha, and Cincinnati. All these cities, and the smaller ones as well, are much more dependent on the surrounding farmlands than the cities and towns farther east.

St. Louis, being so far south, differs greatly from the cities farther north. It is an important center for the manufacture of tobacco. Since great numbers of horses are used in the states

north of it, and great numbers of mules in those to the south, it is an important market for both horses and mules. Wool and hides from the sheep and cattle ranches of the West reach the city in large quantities, making it an important center for wool and for the manufacture of shoes. It is also a great center for meat packing.

The importance of the farms for the growth of the cities is perhaps best shown in the cases of Indianapolis, in Indiana; Columbus, in Ohio; and Des Moines, in Iowa. Locate these cities. No one of them has the advantage of water transportation on a large lake or river; their growth has largely depended on the surrounding land and transportation by railroads; yet they have thrived wonderfully, and two of them are the largest cities in their states. Which are they (p. 311)?

The surface of the North Central States is very different in appearance from that of the Northeastern States. In traveling from Boston to Pittsburgh one is struck by the number of hills and moun-

Difference in appearance of this region from that to the northeast



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Fig. 92. — A farm home in the North Central States

Homes like this one are common in these states. Many barns and sheds are necessary to store the feed for the live stock during the long winters. The tower-like building is a silo where green fodder is stored.

1. The difference in the surface
 tains, by the winding roads, beautiful valleys, and extensive forests, and by the quantity of land that is not cultivated. In New York and New Jersey, to be sure, there are many fertile farms. But in New England many of the farms are so strewn



Fig. 93. — A wheat field in Kansas
 The only trees are along the banks of streams.

with bowlders that ploughing is next to impossible; and often where the surface is cleared of rock, the soil is too shallow for successful farming. In Pennsylvania there is more good farmland; but in traveling by rail from Philadelphia to Pittsburgh one sees many high hills, passes through one deep cut and tunnel after another, goes around a great horse-shoe curve to reach the top of the Allegheny Plateau, and then follows deeply carved river valleys.

As one proceeds westward from Pittsburgh the scene changes. Within the first hundred miles the high hills nearly disappear; and beyond central Ohio one rarely sees a hill. For hundreds of miles the land is nearly as level as a floor. There are many patches of timber in Ohio and Indiana; then, in Illinois and Iowa, come the *prairies*, and beyond them the *Great*

Plains. In both the prairie and Great Plains regions there are few trees except along streams. It is quite possible that there are some children on the Great Plains old enough to be going to school who have never seen a patch of woods.

West of Indiana no bowlders are likely to be seen in the fields, and on many farms a careful search would not discover pebbles large enough for a sling-shot. The soil in most places is so deep that bed rock is not struck even in digging deep wells; and it is also very fertile. No wonder that many men abandoned their farms in New England, in order to farm in these states!

Why?

The crops, also, are very different in appearance from those in the Northeast. The best time to see them is, perhaps, toward the end of June, when they have not yet matured. Beginning in western Ohio, corn is especially common; and it is just as common all the way to eastern Nebraska, occupying nearly one half of all the land in this belt. Because there is so much of it, this region is called the *Corn Belt* (Fig. 147).

2. The difference in the appearance of the farms
 The wheat section is a little farther west, including North and South Dakota, Minnesota, Nebraska, and Kansas (Fig. 148). This is the leading wheat area in the United States, and many of the farmers raise little else. Wheat is so important that, if it were to fail for one year, not only the inhabitants of the United States but those of Europe as well might suffer seriously for bread.

Roads are usually straight in these states, because they do not have to wind between hills; and there is little waste land. To many persons much of this country seems flat and tiresome and they do not care to go touring here because "there is nothing to see." But to others the black, fertile soil, the broad green pastures with their grazing cattle, sheep, and horses, and the fields of waving grain are wonderfully attractive. They enjoy these sights not only on account of their beauty, but because of the prosperity they suggest.

The area of these states is much larger than that of the Northeastern group, since they extend about 1,200 miles east and west, and 800 miles north and south. The rain for this whole region comes almost entirely from the Gulf of Mexico. This shows how important the winds are, since they carry all this water.

Fig. 146 shows the section that has the heaviest rainfall. What states are included in it, and how many inches fall there each year? Note how the fall decreases toward the north and west. Point out the sections that have less than twenty inches per year. That is too little for ordinary farming. Do you know what use is made of the land in such areas?

There is a greater variety of farms in these states than in the Northeastern group. The newly cleared

lands near Lake Superior that are still covered with tree stumps, are one kind (p. 86). On the western border, where the rainfall is less than twenty inches, grass is the principal crop, because there is too little rain for other products. Here the farms, or *ranches* as they are usually called, often contain many hundreds of acres, because the grass is not heavy in so dry a climate, and a large area is required to feed a herd of cattle or sheep.

The farmhouses, therefore, are widely scattered, often being located near springs or along streams, where water can easily be obtained. Life is lonely in such places, and some of the most common comforts are little known. Yet it is a very important work that these people are doing, for they help to supply our tables with meat, besides producing hides for leather, and wool for clothing.

In a region where there are so many

The variety of farms in these states

Where the rain comes from and how it is distributed



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Fig. 94. — Harvesting on a large farm

Truck farming does not require much machinery. On the larger farms, however, where many acres are devoted to a single crop, farm machinery is very important. The machine on the right is cutting the green fodder. That in the center is raking it into a long *windrow*. The machine on the left is loading it on to a wagon.

large cities as in the southeastern portion of these states, truck farming can be expected, as in the Northeastern States. Dairying also flourishes in many places, but particularly in southern Wisconsin and northern Illinois. Can you see any reason for its importance here?

The most common kind of farm, however, is that on which several kinds of grain and vegetables are raised, as well as live stock and possibly fruit, and where the farmer does not depend mainly upon any one product for his income. This is sometimes called *mixed farming*.

A certain farm in central Ohio contains 160 acres, which is considerably larger than the average in that state. Upon it is a farmhouse, with a barn near by for horses, cows, and hay. There is another barn close to it for feeding stock. A silo stands between the two barns; and there are some sheds between the house and the barns for storing grain and farm implements.

A windmill behind the house pumps cold water to the milk shed and also fills the water-troughs in the barnyard. On one side of the house is an orchard of apple, peach, and pear trees, with a few rows of berry bushes in one corner; and there is a chicken house in another part, in which enough chickens are raised to supply some meat and all the eggs that are needed by the family, with some to sell.

On the side of the house next to the orchard are a few beehives, and back of the milk house, between the orchard and the barns, is a good-sized garden. Beyond that are several pig pens, in which pigs are fattened for home use and for the market.

Farther away from the house are fields in which there are at least three or four different kinds of crops. Every farmer in that vicinity expects to raise corn, perhaps sixty acres of it on a farm of this size; some grass for grazing and for hay; and wheat or oats. The part of the farm farthest from the house is a wood lot which contains beech, oak, and maple trees, and from which firewood is obtained.

The busiest time for work is from spring until fall. As soon as the frost is out of the ground the farmer and one or two men who help him begin plowing the ground.

Then comes the planting, and later the tending of the crops, to kill the weeds and keep the soil in good condition. Finally the harvesting follows, from July to late fall, the corn being one of the last crops to be gathered. There are three or four cows, which must be milked night and morning and which supply the family with fresh milk and cream. Now and then the garden must receive attention, the apples must be gathered, the harness must be mended, and many other little things must be done.

Meanwhile the women do the house work, separate the cream from the milk with a machine called a *separator*, look after the chickens, pick berries and can fruit, and work in the vegetable and the flower gardens.

While the winter is the easiest season for the farmer, there are still many regular duties. The cows must still be attended to, the horses fed, and other live stock cared for. On this farm most of the crops are fed to cattle during the winter, because it pays better to fatten stock with the corn than to sell it.

How mixed farming is usually carried on

1. Appearance of a certain farm in Ohio

2. The work of the grown people on this farm

Life on this farm is much more pleasant than it formerly was; it used to be very lonesome, because there were only a few houses in sight and it was two miles to town; and the work for both the men and women was harder. But recent years have brought many improvements. The mail is now delivered every day; there is a telephone in the house; and an automobile makes it much easier to visit neighbors or distant friends and to go to town.

There is a bathroom in the house, running water being provided by a pump run by electricity. Electric lights have taken the place of lamps; even the barn is lighted by electricity, so that the farmer no longer needs to carry a lantern at night. The cream separator is run by electricity and a vacuum cleaner takes the place of the old style broom.

Many modern machines for plowing, fertilizing, and harvesting have made the farmer's work much easier. Some of the time that he formerly gave to hard physical work he now gives to study, for it requires more knowledge and thought to farm now than it used to. This makes the work far more interesting. It requires much intelligence to select the proper fertilizer, to change or *rotate* crops so as not to exhaust the soil, to keep live stock well and to fatten them without too great expense, and to keep machines in good running order. For this reason the farmer reads papers and books on agriculture and now and then attends a course of lectures on some farm subject.

During recent years a girl has been the only child upon this farm. The things she does suggest many of those that are done by any country boy or girl.

There is a fairly good school only a half mile distant, which she attends; and mornings and evenings she helps with the housework. She goes to town two or three times a week, and often rides horseback, since she has a horse that she helps take care of and may use at any time. She has her own vegetable and flower garden, where she spends a good deal of time, partly because she likes to work with plants. Now and then she drives a team while the hay is being loaded; she picks berries or apples in the orchard; she gathers the eggs, drives the cows to and from pasture, looks after some of the lambs or calves, feeds the chickens, and does a score of other things indoors and out. Most of these tasks she enjoys.

She sometimes plays with the neighbors' children; but she has a dog of her own, usually five or six cats or kittens, a few pet chickens, and her horse, and she cares more for these animals than for other children or even for the motion pictures in town. She has some relatives in New York City whom she has often visited; but she feels sorry for anyone who must live in a city, because there are so few things that one can do there.

3. What boys and girls do on this farm

1. Why is Buffalo rather than some port on Lake Ontario the starting point for westbound lake vessels?

Review questions

2. Mention some of the things that you would expect to see in Buffalo harbor. 3. At Cleveland. 4. State some facts of interest about Detroit. 5. How has the country west of Lake Huron changed in recent years? 6. Explain the importance of the Soo Canals, and what one might see there. 7. Locate the mines

on the south shore of Lake Superior. 8. What things in and about Duluth and Superior would interest a visitor? 9. Describe the voyage from the Soo Canals to Chicago. 10. What advantages has Chicago for transportation of goods? 11. How is its location favorable for iron and steel manufacture? 12. For manufacturing and shipping farm products? 13. Compare the leading river cities in size with those on the Great Lakes. 14. What is the chief disadvantage of the river cities? 15. Explain the dependence of these cities upon the farms. 16. How does this country differ in appearance from the Northeastern States? 17. State differences in the appearance of the farms. 18. Where does the rain for these states come from, and how is it distributed? 19. Discuss the variety of farms in these states. 20. Describe the appearance of the farm in Ohio. 21. The work of the grown

people on this farm. 22. Name some of the things that boys and girls do on such a farm.

1. Make a sketch of the Great Lakes. 2. Of the principal rivers in these states. 3. The lakes lead eastward to the Atlantic coast, while the rivers lead to the Gulf of Mexico. Which have the advantage in the general direction in which they lead? 4. From what animals do the following products come: beef; mutton; ham; veal; pork; lard; sausage; tallow; wool; leather? 5. Make a drawing of the farm described on p. 98, locating all the things mentioned. 6. Learn the common abbreviations for the names of the states in this group. 7. Here is a question for debate: *Resolved*, that children can have more fun in the country than in the city. 8. One car holds forty tons of iron ore. How many cars would a lake boat fill

Suggestions
for extra
work



Fig. 95. — Threshing wheat

© Hesse

This is another operation seen on farms where wheat is grown. At the left you can see the sacks of grain and the stack of straw.

that carries 16,000 tons? 9. What advantage, if any, have Chicago and Gary over Pittsburgh for obtaining ore from the Lake Superior district? 10. What disadvantages do you see in the fact that navigation on the Great Lakes is closed from November to May? How can they be partly overcome? 11. Write a composition on the subject: The life story of a loaf of bread. 12. What might

have been the route of the canal connecting the Great Lakes with the Hudson River, if there had been no rapids or falls between Lakes Erie and Ontario? 13. How do farms that you have seen differ from farms in Ohio? 15. See how long a list you can make of articles made of iron. 16. Of copper. 17. How does a farmer obtain drinking water? 18. On Fig. 86 locate the Wheat Belt; the Corn Belt.

IV. THE SOUTHERN STATES

In late fall or early winter a great many Northern people start South for the winter. Some stop in Virginia or North Carolina, or other points a little farther south. Many go on to New Orleans or to other places on the Gulf coast. Whole trainloads at a

Going South
for the winter

1. Places to
which North-
erners go

time, however, go straight through to Florida, some stopping at Jacksonville or St. Augustine; but most of them go to places farther on, including Palm Beach and Miami on the east coast, and Tampa and St. Petersburg on the west coast. Find these towns on Fig. 105. The entertainment of Northerners is the chief business in many parts of Florida during the winter and it is prominent in many places along the Gulf coast.

The objects of such a trip are to escape the cold winter of the North, and to enjoy a vacation. Even

in Virginia and North Carolina there is not very much snow, and on the Gulf coast there are many people who have never seen snow. In New Orleans, few people need overcoats, because midwinter there is much like October in the North.

2. What the at-
tractions are

All the outdoor sports that are com-



© Underwood and Underwood

Fig. 98. — A winter home in Florida

Coconut trees are in the foreground. Across the water, at the right, is West Palm Beach (Fig. 105).

mon in summer in the North can, therefore, be enjoyed on the Gulf coast and in Florida throughout the winter, such, for example, as tennis, golf, boating, and fishing. Many of the baseball teams of the



Fig. 97. — Chimney rock in the Southern Appalachian Mountains

The great size of the rock is shown by comparing it with the people at the foot of the stairway in the notch near the center of the picture.

major leagues go there in late winter to begin their practice.

There is, however, danger of a short period of cold weather at any time on the Gulf coast; for there is nothing to prevent the north winds from sweeping down there from the Dakotas. The temperature at such times may not go much below freezing; but it can make people feel very uncomfortable for several days.

These cold spells explain why so many people prefer to go to southern Florida. On the trip South one is likely to feel that

one is almost at the journey's end when Jacksonville is reached. Yet the distance from that city to Miami is one half that from Washington to Jacksonville, or between 300 and 400 miles. It never freezes at Miami, and many of the days there are uncomfortably warm in January and February. One can sit out of doors in comfort, and many of the people spend a large part of their time in the parks. They can add sea bathing to the other pleasures mentioned; and one of their chief delights is to read in the newspapers about how cold it is in the North.

One of the popular routes from the East to the Pacific coast leads across the South by way of New Orleans. Starting at New York, one passes through Washington, and then, perhaps, through Danville in Virginia, Atlanta in Georgia, and Montgomery in Alabama.

From New Orleans one goes almost directly west through Houston, San Antonio, and El Paso in Texas, on to southern California. Trace this route on the map.

On such a trip one acquainted with the North is likely to be impressed first with the likeness between the North and the South. On his right he has the ridges of the Appalachian Highland for several hundred miles, which are a continuation of the highlands of Pennsylvania; and the country through which he passes, until he reaches Atlanta, is rough enough to remind him of the Northeastern States. After that, the surface becomes more level, and from New Orleans to El Paso most of it is as level as the prairies and Great Plains of the North Central States.

Things of special interest to the Northerner crossing these states

1. Similarity between North and South

If one makes this trip in summer, one will be impressed with the similarity in crops. Corn will be seen all along the route until western Texas is reached, where there is too little rain for its growth. It covers a much smaller portion of the ground than in the Corn Belt, but almost every farmer raises some. It is used much more for bread in the South than in the North, for almost every family expects hot corn bread at least once a day. Some rye and wheat will be seen, and also such vegetables as are common in the North. In fact, most kinds of vegetation that grow in the North are likely to be seen on this journey also.

Some very important differences, however, will be noted. Soon after entering Virginia, one will be struck with the amount of unused land. There are fine farms here and

2. Striking differences



© Cook

Fig. 98. — A tobacco field in the Southern States

there with good buildings, and herds of cattle and sheep feeding in rich pastures; but for long distances there are no houses and the ground is covered with forest or underbrush. The same impression is received through much of the journey. In fact, less than a third of all the land in the South has been improved, while in Illinois and Iowa more than three fourths of the surface are under cultivation.

In southern Virginia, the traveler begins to see tobacco fields, and as he proceeds into North Carolina the number greatly increases. Tobacco is raised in several Northern states, but in no one of them is so much grown as in the region about Durham, in North Carolina. Can you recall some of the advertisements of Durham tobacco that you have seen?

Each tobacco field is



Office of Farm Management, U. S. Dept. of Agriculture

Fig. 99. — A farm in Virginia

Can you tell from the elevations as shown on Fig. 105 whether this farm is in the eastern or the western part of Virginia?



© Portland, Oregon, Chamber of Commerce

Fig. 100. — Cotton stored for shipment

small, containing usually from two to ten acres, because the plant requires much labor and each family cultivates only as much as it can care for alone. But there are so many fields, extending over a distance of 200 miles in Virginia and North Carolina, that one soon finds that tobacco is more of a Southern than a Northern crop.

Shortly after the train passes the tobacco region, a kind of plant ^{c. Extent of} not seen any- ^{cotton fields} where in the North begins to appear; and for the next 1,200 miles in our journey we note that it occupies about as large a part of the cultivated land as does corn in the Corn Belt of the North Central States. This is the cotton plant. As in the North, other crops are seen on many farms, but cotton is by far the most common. This region is therefore called the *Cotton Belt*.

Our journey carries us the whole length of the Cotton Belt. Find out from Fig. 101 what states are crossed and in which of them the traveler finds the most extensive cultivation of cotton.

Two other crops not grown in the North are seen in the neighborhood of New Orleans. One is sugar cane, from which sugar is made; and the other is

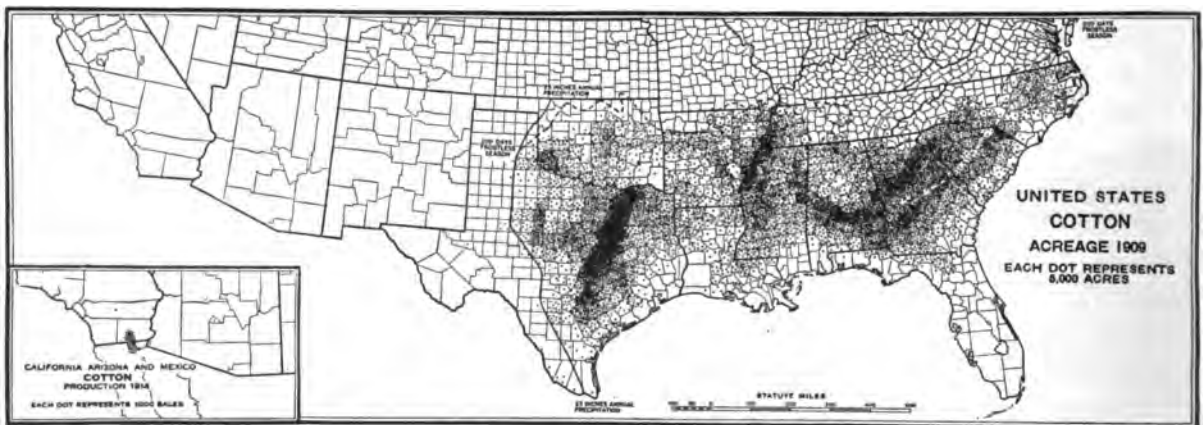


Fig. 101

From *The Geography of the World's Agriculture* (1910)

Cotton is grown also in Arizona and southern California, but the area there devoted to this crop is much smaller than that in the "Cotton States."

rice. Sugar cane looks like corn, but grows taller and

d. The location and appearance of two other crops not grown in the North has a thicker stalk. From a distance, the one can hardly

be distinguished from the other. The cane, however, is injured by frost, and requires nearly a year for full growth. The only place in the United States where much of it is cultivated is on the low, flat lands of the Mississippi delta (Fig. 105), which in winter are under the influence of the warm, moist winds from the Gulf. The traveler would find

from one third to one half of all the cultivated land in that section planted in sugar cane.

It is the juice of the cane that produces the sugar. This is pressed out of the cane and boiled down in immense sugar factories in Louisiana. One of the interesting sights in the sugar-cane region in the fall is that of both children and grown people chewing away on pieces of cane a foot or more in length.

Rice is the principal crop farther west along the coast of Louisiana and Texas. According to the season, the appearance of the fields varies greatly. In the spring they look much like fields of wheat or oats. But rice, after its growth is well started, requires one half inch of water every day for ninety days; and although the rainfall is heavy along the Gulf coast, only about twenty inches fall in that time. Is this more or less than half of what is needed? On this account, the fields must



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Fig. 102. — A rice field

The rice fields vary in size from twenty to one hundred acres. Each field is divided by ridges into little flooded squares.

be flooded, and, as they are separated from one another by embankments, they have the appearance, for about three months, of many little lakes (Fig. 102).

Toward harvest time, the ground is allowed to dry out and harden, so that machines may be driven over it. The rice is then harvested in much the same way as wheat or oats.

In one respect, the population of the Southern States differs greatly from that in the North. In traveling in the South one soon finds that negroes form a large part of the population. In some states more than one half of all the inhabitants are negroes.

e. The difference in the population

The South is the region in which slavery formerly existed on a large scale, because here negro labor was profitable, and these negroes are the descendants of the former slaves. They are particularly valuable workmen in this section because

they can stand the hot, moist summers better than most white people. Altogether there are about 10,000,000 of them in the United States, of whom more than 8,000,000 live in the Southern States.

inence of farming in the South? About the prominence of manufacturing?

We have seen that the South grows three valuable crops—cotton, sugar cane, and rice—that cannot be

A fourth advantage in agriculture of the South over the North raised in the North. Citrus fruits are a fourth Southern product. Oranges and lemons are raised in many places along the Gulf coast; but they are safe from frost only in the southern half of Florida. There one finds grove after grove of oranges and grapefruit, with some lemons and limes.

Florida is a low, flat country and swampy in many parts. But these groves are very beautiful,

especially when laden with fruit. Some of the trees bear blossoms, green fruit, and ripe fruit all at the same time. As in the orchards in the North, the trees almost break with the weight they carry, and the bright, richly colored ripe fruit contrasts strongly with the green leaves. At a short distance, the oranges can hardly be distinguished from the grapefruit; but the latter are larger and grow in clusters somewhat like a bunch of grapes. This is the reason for their name.

Some bananas are produced. These are a tropical fruit; but the only tropical plant extensively cultivated is the pineapple, so called because it resembles a large pine cone. This fruit grows on a very short stem surrounded by spiny-edged leaves that entirely cover the ground. In looking over a field one sees



Photo by U. S. Army Service

Fig. 103.—Richmond

On what river is Richmond located (Fig. 105)? For Richmond's railroad lines, see Fig. 150.

There is, also, a very marked difference between the North and the South in the number of large cities. In going from New York to Chicago, by way of Buffalo or Pittsburgh, one passes through several great cities. Can you name some of them? On this entire route, however, from Washington to El Paso, the traveler passes through only one very large city—New Orleans. The next largest, located on or near this route, are Richmond, in Virginia (Fig. 103); Atlanta, in Georgia; Birmingham, in Alabama; and Houston and San Antonio, in Texas. Yet only one of these has as many as 200,000 inhabitants. Locate these cities on Fig. 105, and note their populations on p. 311. What suggestion does this absence of large cities make to you about the prom-

f. Difference in the number of large cities

only these leaves, and the pineapples themselves from two to four feet above the ground (Fig. 104). Florida produces few lemons; but one fourth of the oranges, and about three fourths of the grapefruit, limes, and pineapples raised in our country come from that state. Most of the remainder comes from California (p. 140).

The South has still another advantage for agriculture. Anyone living in a large Northern city has noticed that fresh string beans, lettuce, and radishes can be obtained at some of the stores through the winter; and that new potatoes, fresh peas, asparagus, and strawberries are in the market in March, even before the snow is all gone. Have you wondered how this is possible?

These products come mainly from the distant South. The winters are so warm along the coast, and the sandy soils are warmed so readily, that some of these foods are raised there throughout the winter, and others are planted while it is still cold in the North. For example, in Florida two crops of string beans are usually produced in the winter; one, planted in October, is ready for market in early December; and the other, planted in January, is shipped in early March. All the gardeners in one neighborhood may grow little else than lettuce, while those in another place may raise only radishes. Thus many truck gardens in Flor-

ida and other Southern districts keep the tables in the North well supplied with vegetables and small fruits through the winter.

The principal markets are in the densely populated Northern states. As the season advances, these supplies come from regions nearer at hand. Then the more distant Southern sections are at a disadvantage and must turn to other products.

Without fast trains the South and the North could not benefit from each other in this way. Thus we are all dependent upon one another; and upon the improvements of the past, for most of the things that we receive.

While some farms in the South grow only garden truck or sugar cane or rice, mixed farming is common in many districts. The Southern farm of 100 or 200 acres, owned by the man who cultivates it, looks very much like the farms in Ohio. There is a well-built

Advantage
of the South
in raising
small fruits
and vegetables

How South-
ern farms
compare with
the one in
Ohio de-
scribed on
p. 98



Fig. 104. — Pineapples in Florida

© Brown Bros.



Fig. 105



brick or frame house near the road, with other buildings about it for horses, cows, machinery, pigs, and chickens. There is a garden, where both "Irish" and sweet potatoes are raised, together with cabbages and other vegetables; and there is an orchard.

1. How the small farm compares with that in Ohio

Yet there are some striking differences in appearance. The large barns that are so common in the North Central States are lacking, because the short, mild winters do not call for much storage of feed for live stock or for large buildings in which the stock may be protected. One

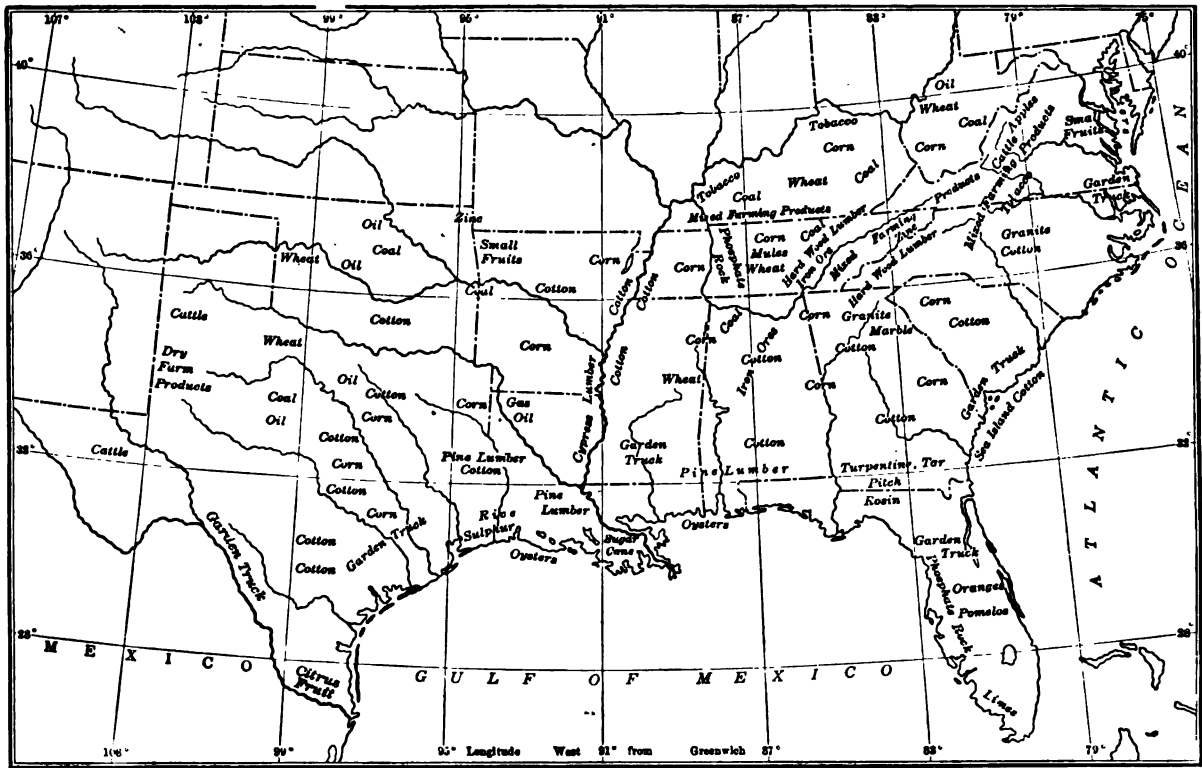


Fig. 108. — The more important products of the Southern States

This map shows you what is likely to be the chief crop grown on both the large and the small farms in each district of the South. In what sections are lumber or the products of mines or quarries also important? (*Pomelo* is another name for grapefruit.)

There is also some pasture land, usually some corn, and often fields of wheat and oats.

Life on such farms is much like that on the farm described on pp. 98–99. Neighbors are not far away; nearly every such farmer has a telephone, the mail is delivered every day, and automobiles are common.

also sees patches of tobacco much oftener than in the North; cotton is a very common crop in many states; and in most states there is sure to be a field of *sorghum* for making sorghum molasses.

There are, also, large farms, called *plantations*, which contain several hundreds or even thousands of acres, and which differ much more from the Ohio

farm. Corn and cotton and, in Louisiana and eastern Texas, sugar cane, are the leading crops upon these, and the people who do the work are mainly negroes. In many cases the owner lives in the nearby town and has an overseer to look after the work. Oftener, however, he lives in a beautiful home on the plantation.

The portion of the land that the owner does not cultivate is divided into small patches called "one-horse" or "two-horse" farms, which are rented out to negro tenants. The size of the farm allotted to each negro depends upon the number of horses he owns and the amount of help he has in his family. A one-horse farm contains about twenty acres, and the negro family that works it lives in a small cabin. Thus a plantation often has one fine residence with a number of cabins scattered over it. Make a drawing of such a plantation as you imagine it.

Life in the hilly and mountainous sections of the South is different from that on the small farms and the plantations. Note in Fig. 105 how extensive these sections are, and the states in which they are found. The people here till only a small part of their land, and raise chiefly corn and potatoes. They have little to sell and, therefore, buy little. Their houses are usually small and built of logs, and are poorly furnished. Their roads are very poor and railroads are few, so that one sees few persons outside of one's own neighborhood. Such a life seems to outsiders to have few attractions. Yet these people love the solitude of the forests and the

freedom that they have there; and they would not readily leave their mountain homes for the open plains.

Sixty years ago corn and tobacco were raised in the South, and some hemp. Sugar cane and rice were also grown, but only in a few sections. But the only crop that was really important was cotton; this was produced in large quantities.

In those days, little of the cotton was manufactured in the South; in fact, the Southerners did not want to manufacture. They preferred to give all their attention to the growing of the raw cotton, letting other people do the manufacturing. The money they received from cotton was enough to supply all necessary comforts, and even luxuries.

Much of the manufacturing of the cotton into cloth took place in New England. Much of it, also, was done in old England. In both of those regions scores of factories and thousands of workers were occupied entirely with cotton manufacture; and the principal, indeed, almost the only place from which they could obtain the raw material was the South. If for any reason the South withheld it, all these people and the many hundreds of thousands of others dependent upon them soon began to suffer.

The Southerners came to realize how important they were in the world. Cotton formed then, as it does now, the greater part of the clothing for both the rich and the poor, in cool climates as well as in warm. People, therefore, had to have it. One day a Southern Congressman at Washington made a speech about cotton, boasting that all the world had to come to the South to buy; and he ended

2. How the plantation compares with the Ohio farm

The story of King Cotton

1. How he got his name

3. Life in the hilly and mountainous sections of the South

by declaring proudly that Cotton was King and all the people of the world were his subjects. From that time on people often spoke of King Cotton.

this work was and set to work to make some improvement. He soon produced a machine that separated the fibers from the seed with wonderful ease and speed;



Photo by Brown Bros.

Fig. 107. — Picking cotton

Notice that entire families take part in this work.

Southern Cotton had not always been a king. He came to America as an unknown immigrant, and for 200 years lived in Southern gardens and on the edges of plantations. His great neighbors Tobacco and Rice hardly noticed him; and he was of little importance in the world at large in comparison with Flax and Wool.

The difficulty that held him back was the fact that the fibers were so short and clung so tightly to the seed that there was no easy way of getting them off. It was a day's work for a man to separate more than a pound or two from the seed. Under such circumstances, it did not pay to allow Cotton to occupy much land.

In 1792 an inventive Yankee, who was teaching in Georgia, noticed how slow

and it could be made so cheaply that it was widely used. This machine became known as the *cotton gin*. The man who invented it was Eli Whitney.

The effect was wonderful. It now paid to give ground to cotton and hundreds of acres were soon grown, where before there had been only one. New lands were opened up; new towns were founded; and new ships were built to carry cotton to New England and to Europe. The South grew by leaps and bounds, all owing to cotton. And it

was Eli Whitney who had made it so powerful.

Although cotton is so necessary to everyone, about two thirds of all that is produced in the world is grown in the Southern States. Why does King Cotton thus prefer the South to all other regions?

The reason is that he is very particular about where he lives, and the South just suits him. For example, he cannot endure cold; and in order that he may thrive, the growing season must be free from frost for as many as 200 days. How many months is that? On the other hand, the weather must not be too hot; tropical heat is too severe for him. These requirements limit him to a very few countries.

2. How a stranger made Cotton so powerful

3. Why he established his kingdom in the South

There are still other requirements. He demands much rain; but he objects to the heavy tropical downpours. Gentle and frequent rains please him best during the growing season, and he does not want heavy beating rains after the pods, or *bolls*, burst open. Also, the soil must be deep and fertile. Partly for the last reason, he keeps away from the low, sandy coastlands in the South. Nor does he like the hills and mountains in western North Carolina and eastern Tennessee, as is suggested in Fig. 101. That figure shows what a vast area in our Southern states meets all these conditions, and therefore has been chosen for his kingdom. In all this region he rules supreme.

King Cotton is very exacting toward his subjects. Unlike Wheat, he will not permit an extensive use of machinery; but he requires a great amount of hand work

4. The demands
he makes upon
his subjects

instead. Thus he keeps a large number of persons in his service, men, women, and children, throughout almost the entire year. Indeed, many thousands of families earn almost their entire livelihood by working in the cotton fields. Hardly any negro child is too small, or any negro Uncle or Mammy too old or too feeble, to help in this work.

In March or April they plant the seeds in rows like corn, very thickly in order to insure a good crop. When the plants are well up they thin them out, work

that is done with a heavy hoe and that is called *chopping to a stand*. Then all through the long, hot summer they carefully hoe and cultivate the plants, killing the weeds and keeping the soil in good condition.

Meanwhile the plants are preparing a harvest. In the early summer beautiful blossoms appear, first white and then pink. These soon drop off, and their place is taken by small, green *squares* which become large and round and are then called *bolls*. Finally the bolls burst open and the white, fleecy fiber — King Cotton — comes into view all over the field. What can you think of that looks like it? The cotton picking is then ready to begin.

A score or more of persons — whole families together, negroes for the most part — enter a field; and they have a jolly time at the work. Each picker car-



© Charles L. Franch

Fig. 108. — Loading cotton at New Orleans

Each of these large rectangular objects is a bale, tightly pressed together and wrapped in burlap to keep it clean. Cotton is being put aboard this steamer. Is it, therefore, probably a river or an ocean vessel?

ries a sack slung over his shoulder, so long that it may even drag on the ground behind (Fig. 107). Since the plants grow only from three to five feet in height, even the children can easily help in the work. They stick the thumb and first two fingers into the boll and take out the cotton with a quick motion. A girl with slender, nimble fingers may do this far more quickly than a strong man with clumsy hands used to holding a hoe.



Courtesy of Tennessee Coal, Iron, and Railroad Co.

Fig. 109. — Coke and ore bins, Birmingham

Picking begins early in September, and the last picking may be as late as Christmas or New Year's. If the yield is good, there may be one bale of 500 pounds to the acre; but less than half a bale is more nearly the usual crop.

King Cotton keeps thousands of subjects at work for him in the South in other ways than on the farms. As the cotton is picked, it is hauled to the gin. Formerly, these machines were small and located on the plantations; but now they are much larger and, together with the

baling press, are in the towns. The farmer drives a huge load of the loose cotton to the gin and the press, and quickly gets back the baled cotton and the seed. Two thirds of the weight of the cotton, as it is picked, is in the seed.

Then the cotton is sent to the factory. Before being shipped any great distance, the bales are usually compressed to about half their size as they come from the gin, so that they will not take up so much room. The traveler in the South sees bales of cotton everywhere in transport: at the railroad station, on freight trains, on river boats, and at the ocean docks (Fig. 108). Every coast city, as for example New Orleans, Savannah, and Galveston (Fig. 105), is a center for the export of this product.

About one fourth of all the cotton raised in the South goes to factories there. Travelers speeding across North and South Carolina, Georgia, and Alabama, see many long, low brick buildings, often with tall chimneys. These are cotton mills. Very often, these mills are in the country, with no more buildings near them than are necessary for the workmen and their families. In the North factories are usually located in cities; but in the South a large share of the cotton mills are in the country or in small towns.

The cotton seed was, for fully a hundred years, considered a nuisance except for planting; but now it is about one sixth as valuable as the cotton fiber;

and it leads to many kinds of manufacturing. An oil is pressed from it that is used in place of olive oil; also as a substitute for lard, and for other purposes. The hulls are used for fertilizer, and the cake that is left after the oil is extracted makes a good feed for live stock.

We saw that King Cotton has more subjects on the farms in the South than any other crop there. Likewise, he keeps more persons at work for him in transportation and in manufacturing than any other product. Hundreds of thousands are serving him there all the time; he is a powerful king in a very wide realm.

Everybody is proud of Pittsburgh as a manufacturing center, for reasons that

How the manufacturing about Birmingham compares with that about Pittsburgh

you can recall (p. 78). Birmingham, in Alabama, is often called the Pittsburgh of the South, and it even has one important advantage over the Pennsylvania city. Coal is

just as conveniently located and iron ore far more so. When you recall the distance iron ore must be carried in order to reach the blast furnaces of Pittsburgh (p. 78), you can see how important the advantage of Birmingham is. Iron can be manufactured more cheaply in the latter place than anywhere else in the United States. Birmingham is much smaller than Pittsburgh; but it is, also, very much younger. It manufactures a large amount of iron and steel, and is the most rapidly growing city in the South. This section does not yet compare with Pennsylvania in output of iron and steel; but it is the leading center for that industry in the South and has a fine prospect for growth.

While the South is not so well supplied

with bituminous coal as the North, several of the states have a large amount. They have other things, also, to take the place of coal in manufacturing. One of these is running water. The heavy rainfall in these states (Fig. 146), particularly in the South-

Further comparison of the South with the North in advantages for manufacturing

ern Appalachian Mountains, supplies a great amount of water to the streams, and therefore a great amount of power for manufacturing. Much of it is already converted into electricity for use in the cotton mills and other factories in the areas bordering the mountains.

Other substitutes for coal are oil and gas. The traveler in Oklahoma, Texas, and Louisiana sees hundreds of derricks, marking valuable oil wells. In northeastern Oklahoma they are especially numerous. Recently there has been great excitement in all these sections over the discovery of oil, and more oil is now produced in the South than in any other section of our country.

The South has been too much occupied with agriculture to make full use of its advantages for manufacturing, but it is now turning its attention much more to this form of industry.

You remember (p. 86) that the stumps of trees in the Great Lakes region are about all that is left of former forests in that part of our country; also, that those northern states must now obtain a large part of their lumber from distant sections of the country. The South is exhausting its extensive forests in much the same way. Formerly the belt of long-leaf pines extended all along the coast

How the South is repeating the experience of the North Central States in treatment of its forests

from Chesapeake Bay far into Texas. They are very different from the pines of the North, having longer needles and a much harder wood that is especially valuable for building. Besides, the sap



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Fig. 110.—Collecting crude turpentine from the Southern pine

Crude turpentine is obtained by tapping the tree. One method of tapping is to cut V-shaped scars in the tree with a notch below, thus forming a rude cup. The liquid oozes out of the scars and is collected in the ridge cup, from which it is dipped by a paddle. From time to time fresh scars are made higher and higher on the tree.

that oozes forth when the bark is scraped away is made into turpentine, tar, and pitch (Fig. 110). These are called *naval stores*, and are used in making paints, varnishes, and many other things.

The people of North Carolina used to be called "Tar Heels" because so large a quantity of naval stores was produced there. But that state and several others have nearly exhausted their hard pine. A trip along the coast from Virginia to

New Orleans would readily show this. In North and South Carolina one would see many cut-over areas, with old sawdust piles, abandoned sawmills, and even abandoned towns. While some lumber still comes from these states, most of the Southern pine is now obtained farther west, from Mississippi, Louisiana, Texas, and Arkansas.

The hardwood forest region contains such trees as oak and hickory. What are some of the uses of such woods? Most of our hardwoods now come from the South, Memphis and Nashville being our most important hardwood centers. The South now produces more than a third of all the lumber used in the United States.

That cannot, however, be kept up. While there are still very extensive forests in the western states of this group as well as in the Appalachian Highland, the Southern forest area is becoming smaller each year; and unless care is taken, the South, like the North, will soon be seeking its lumber from distant places. Many persons believe that such destruction of forests is a very serious mistake. Can you suggest why?

There are many things about New Orleans that make it an especially interesting city. For example, it is located on the Mississippi River, and while in most places people go down hill to approach a river, there they have to go up hill. The city lies ten feet below the level of the river during floods. Broad banks of earth, called *levees*, have therefore been built along both sides so as to shut in its waters.

Interesting facts about New Orleans

1. Difficulties caused by the low land, and how they have been overcome

a. The danger of floods and how it is met

Why should a river be higher than the land about it? There are a good many such rivers in the world, and the reason is easy to understand. The waters of the Mississippi coming from distant regions are heavily charged with mud, which is carried along by the current. As they approach the sea, the current gradually

if the levees gave way. This does sometimes occur, especially in the spring after the snows have melted in the North and caused the water to rise. Then hundreds of men patrol the levees night and day to check the slightest leak. The smallest hole may be the beginning of a disastrous flood.



Fig. 111. — St. Charles Avenue, New Orleans

In what ways does this street differ in appearance from the streets in the residence districts of Northern cities?

slackens, and then some of this mud sinks. In this way the river built up its bed and its banks on both sides, and thus elevated its surface level above the surrounding land. If the waters were not shut in by levees they would spread out over a wide area and flood much valuable farmland. Much of the land on both sides of the Mississippi from Memphis southward is lower than the river, and must be protected from it by such walls.

You can imagine what would happen

The land on which the city stands is almost perfectly flat, the highest portion being a ridge hardly more than two feet in elevation. "How

can such land be drained?", b. The necessity of drainage and how it is provided you may ask. Also, "How

can people live there, if it is not well drained?" The seriousness of these questions is all the greater when one learns that fifty-seven inches of rain fall there each year; also, when one remembers that every large city produces a great

quantity of sewage that must be carried away by some system of drainage.

For a long time there were no good answers to these questions; and the people suffered as a result. The ground was too wet to allow cellars under the houses; the sewage ran or stood in gutters and

ground was lowered, so that cellars are now possible; and there has been no epidemic of yellow fever since the mosquitoes were destroyed in 1906. It required great energy on the part of the people to put through such improvements; but the results are wonderful.



Fig. 112. — The water front at New Orleans

© Charles L. Franck

open ditches; and the principal streets were sometimes flooded with several feet of water. Of course many kinds of sickness followed; particularly, mosquitoes so flourished that every few years there was an epidemic of yellow fever that killed thousands of the inhabitants.

At last a solution of the difficulty was found and carried out at great expense. Since the sewage could not naturally flow up into the river to be carried away, it was pumped up. Sewer pipes were laid in the streets; these led into cesspools, and pumping stations were established for pumping the sewage from them into the river. The rain waters were likewise pumped into a body of water near by. By such means, the level of water in the

The city is very different from any other in our country, with its semi-tropical climate and its great variety of inhabitants and of architecture. There is the French quarter, where the people still speak French as their native tongue, and where many old-style mansions can be seen, with tiled roofs, iron railings on the balconies, and flower gardens. The most common trees are the palm, the fig, the orange, and the mag-

nia; and even in winter the air is often perfumed with the odor of violets and roses.

Probably the most interesting place is the harbor. The river is about a half a mile wide and from forty to two hundred feet deep, and vessels from all parts of the world dock there. The port ranks next to New York in importance in our country. As might be expected, thousands of bales of cotton can be seen on the piers, for New Orleans is the leading cotton-shipping port in the world. There are great quantities of sugar and rice, also. Why should they be expected? Since New Orleans so directly faces South America, many of the products of that continent enter the United States by this

2. Scenes
about the city

port. Much of our coffee and bananas reaches us by way of New Orleans. If you could spend a few days in the city, how do you think you would occupy your time?

There is a striking difference between the North and the South in the location of chief cities. Of the ten largest in the North, four are on the Atlantic coast, four on the Great Lakes, and two on the large rivers. Every one is on some important water route. See if you can name and locate the ten.

The difference between the North and the South in location of chief cities

Of the ten largest in the South, two, New Orleans and Houston, may be counted as coast cities, although they are some distance inland. Ocean vessels can readily reach them; three are on rivers, namely Louisville, which is next to New Orleans in size; Memphis, on the Mississippi River; and Richmond, on the James River; the other five which are Atlanta in Georgia, Birmingham in Alabama, Nashville in Tennessee, and Dallas and San Antonio in Texas, are upon no important navigable waters. Find these ten on Fig. 105. Water routes have counted for very much less in the South than in the North in the location of cities; for, while each of these six cities numbers more than 100,000 in population, there is but one coast city between Washington and New Orleans that reaches 100,000,—Norfolk in Virginia. Other important coast cities are Charleston in South Carolina, Savannah in Georgia, Jacksonville and Tampa in Florida, and Mobile in Alabama. Locate these also.

What causes such a difference? It certainly is not due to lack of water routes in the South; for that region has a great

extent of navigable rivers, and much more coast line than the North. Name some of the more important rivers.

The difference is due chiefly to the difference in the occupations of the two sections. In New York City the two leading occupations were found (p. 72) to be manufacturing and transportation; these are much more important than agriculture in the Northeastern States. In the North Central States they rank about equally with agriculture, in spite of the great amount of farm products. If we consider the North as a whole, that is, the Northeastern and the North Central states combined, we find manufacturing and commerce to be considerably more important than agriculture.

The meaning of this difference

It is just the other way in the South; agriculture is by far the most prominent industry. For this reason few of the chief cities owe their growth to advantages of transportation by water. Like Indianapolis (p. 95), they have grown up at a distance from water routes, in the midst of rich farmlands, and are mainly dependent on such lands for their prosperity.

1. Name and locate places in the South to which Northerners go for the winter.
2. What are some of the attractions there?
3. What similarity between the North and the South does the traveler note in crossing these states to the Pacific coast?
4. What difference does he see in the amount of unused land?
5. In the extent of tobacco fields?
6. In what states does he find cotton, and how prominent is it among farm crops?
7. Locate two other farm products not grown in the North, and tell some-

Review questions

thing about their appearance. 8. What difference is there in the character of the population? 9. In the number of large cities? 10. Tell about a fourth important advantage of the South over the North in agriculture. 11. Explain the advantage of the South in raising small fruits and vegetables. 12. Compare the small Southern farm with the one in Ohio. 13. Compare the plantation with the Ohio farm. 14. State some facts about life in the hilly and mountainous section of the South. 15. How did King Cotton get his name? 16. Why has he established his kingdom in the South? 17. What demands does he make upon his subjects? 18. How does he influence transportation and manufacturing in the South? 19. Compare the manufacturing about Birmingham with that about Pittsburgh. 20. Make a further comparison of the South with the North in advantages for manufacturing. 21. How is the South repeating the experience of the North Central States in the treatment of its forests? 22. What kinds of trees grow in the South? 23. Explain the danger of floods in New Orleans and how it is met. 24. Show the special need of drainage there and how it is provided. 25. Describe scenes about that city. 26. How does the South differ from the North in the location of its large cities? 27. Explain the reasons for this difference.

1. Make a collection of advertisements of winter resorts in the South. 2. Make a collection of articles manufactured from cotton. 3. Grow some cotton and some rice plants in the schoolroom. 4. Write the life story of a bit of cotton, from the time it is picked in the field until it becomes a

**Suggestions
for extra
work**

part of a garment or of a sheet of letter paper. 5. Mention other advantages of the Southern climate; for example, in regard to houses and clothing. 6. In what ways are mosquitoes destroyed? 7. Make a drawing to show the plan for carrying off sewage in the town where you live or trade. 8. Write a story describing the damage done by a break in a levee of the Mississippi River. 9. If an exposition were held in New Orleans showing the products of the South, what things should be exhibited? See to what extent you could prepare such an exhibit. 10. Trace the shortest route by water from New Orleans to Chile, in South America; to China. 11. King Cotton has many enemies. Find out what some of them are, and how they are fought. 12. Here is a question for debate: *Resolved*, that the world would be better off if the tobacco plant had never been discovered. 13. Spell the names of the Southern States, and write the abbreviations for them. 14. Make an outline drawing of these states, and put in the principal rivers, mountains, and cities.

V. THE WESTERN STATES

It is a surprise to many people to discover that after traveling all the way from New York to Chi-
 cago they have gone less ^{The great distances in the West} than one third of the distance across the continent. They must continue the journey 100 miles beyond Omaha, in Nebraska, before they have gone half way to San Francisco.

The West (Fig. 121) covers a vast area. California is nearly as long as the distance from New Orleans to Chicago,

and Montana is longer than that from Buffalo to Chicago. The smallest state in this group is larger than the largest east of the Mississippi River, and the average area of these states is more than twice that of New York. Prove that these statements are true (p. 311).

In most of the states thus far studied, the rainfall varies from thirty to sixty inches per year. When some of their inhabitants

Why people formerly hesitated to migrate to this section

moved a few hundred miles west of the Mississippi River, they discovered that they could not raise their old crops. While at least thirty inches are required for agriculture as they had been accustomed to carry it on, less than twenty inches fall in much of this new territory. How much of this area suffers from lack of rain you can tell from Fig. 146. Of the eleven states in this group, how many have extensive areas that receive less than twenty inches? Answer this question by comparing Fig. 121 with Fig. 146. What portion of the whole area do you estimate this to be? Which states have large sections whose rainfall is less than ten inches?

Owing to lack of rain, the entire eastern and central portion of this group of states came to be called the Great American Desert, although it was often uncertain just what regions the people

who used the name had in mind. Seeing that the old-style farming was not successful here, many people rashly concluded that the entire West was of little value.

In the year 1848, however, gold was discovered in the stream beds of Cali-



Courtesy of California Fruit Growers' Exchange

Fig. 113. — Oranges and snow in southern California

California is a land of contrasts. Its southeastern portion is the hottest in the United States; its mountain tops are covered with snow all the year round. It contains the lowest and the highest land in any of our states; the driest regions, and some of the wettest; some of the most productive, and some of the most desolate.

fornia. By scooping up some of the sand, gravel, and water in a pan, shaking the mixture, and then pouring off the water carefully, bits of gold and even good-sized lumps, or *nuggets*, might be found at the bottom. A man sometimes made hundreds of dollars in one day in this way. The discovery of gold on the Pacific coast produced great excitement;

Why people migrated to California, and different ways in which the trip was made

1. Effect of the discovery of gold in California

and as this method of mining, called *panning*, was so simple that almost anyone could provide himself with a gold-mining outfit, thousands of people started for California.



Fig. 114. — The Overland Limited on the “cut-off” across Great Salt Lake

The best train on the Union Pacific-Southern Pacific route is here seen crossing the longest bridge in the world. Locate it on Fig. 121. The shallow water made such a bridge possible. What advantage, do you suppose, was gained by its construction?

How should they go? From our Northeastern States and from Europe there were three main routes:

2. Early ways of reaching California

one was by boat around South America; the second was by boat to Panama, then across the Isthmus and again by boat; the third was across the “Great American Desert.” Trace these routes. Which do you think you would have chosen?

The third is the one that concerns us. Many men took their families by the *Overland Trail*, which was very nearly the same as that taken by the Union Pacific Railroad a few years later (Fig. 150). Large numbers traveled together, first providing themselves with covered wagons drawn by horses or oxen and with quantities of food and other necessities, including weapons for defense.

Although people had gone overland to the Pacific before the gold rush, the way was poorly marked; there was danger of death from thirst; and savage Indians might attack them at any time. Does Fig. 121 suggest other difficulties and dangers that had to be met? Many persons perished on the way; but so many reached the coast by some route that in 1850 California had become important enough to enter the Union as a state.

As the population of the state increased, mail between the East and the West had to be sent back and forth in the quickest possible time. One of the means employed for this purpose was the *Pony Express*. Starting from St. Joseph, in Missouri, the end of the railroad at that time, and following the Overland Trail most of the way, it carried mail through the places now called Laramie, Pocatello, and Sacramento to San Francisco in eight days. Locate these cities. This was accomplished by the use of the best horses in the country, traveling at top speed. It was a relay race for 1,400 miles.

One can imagine that it was expensive to send mail in this way. The price was at first five dollars, and later two dollars and fifty cents, for a letter. What does it cost now?

Such struggles to cross the Great West help us to realize the joy with which people welcomed the first railroad crossing the entire distance. It was completed in 1869.

This railroad, called the *Union Pacific* as far as Ogden, in Utah, and the *Southern Pacific* between Ogden and San Francisco, really begins at Council Bluffs in Iowa, just across the Missouri River

from Omaha, although the trains start from Chicago. Beginning the journey at

What one can see along the Union Pacific Railroad to-day

1. The mountains and plateaus that have to be climbed

Omaha, one travels the length of Nebraska over very level country, called the Great Plains (p. 96). In every direction one can see for many miles; for there are no hills or forests. The Great Plains extend into the eastern border of the Western States, Wyoming being the first of the Western States reached in our journey. Although the plains seem almost perfectly level, the train is climbing all the time. At Omaha it was 1,000 feet above sea level; but at Cheyenne it is more than 6,000 feet above. It has climbed one mile in that distance and is now as high as the peak of Mount Washington, in New Hampshire. Fig. 62 shows the long upward slope. Note the gradual rise from the Mississippi River.

At Cheyenne the train is at the foot of the Rocky Mountains; in the next thirty miles it must climb 2,000 feet more in order to cross them. At the highest point some of the passengers have difficulty in breathing, for at this altitude, 8,000 feet, the air is much rarer than at sea level.

In Wyoming one crosses the continental divide of North America (Fig. 61). Some of the rain that falls here reaches the Atlantic Ocean, and some the Pacific. In Fig. 121 note how many rivers rise among these mountains, and trace them to the ocean.

Through Wyoming the railroad crosses a plateau more than a mile above sea level. Shortly before reaching Ogden, it crosses the Wasatch Mountains, in Utah (Fig. 115).

Again, after leaving Ogden, one travels for nearly 500 miles over a plateau as far as the eastern boundary of California. Then the Sierra Nevada is crossed at an elevation of about 7,000 feet. After that the road runs down hill to Oakland, where ferries take one across San Francisco Bay to the city of that name.

Much of this country looks now as it did when the pioneers of 1849 traveled over it. Trees are seen mainly along the streams and in the mountains; in some sections there are scattered bunches of grass, and over wide areas there are sagebrush and

2. Scenes such as the pioneers of 1849 saw in following this route



© Keystone View Co., Inc.

Fig. 115. — Wasatch Mountains from Ogden in Utah

Except at the very end of the summer, these mountains are covered with snow. For many miles the railroad follows the course of a stream through a deep gorge between lofty ranges. The green alfalfa and poplar trees rest the eye of the traveler after many miles of desert.



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Fig. 116. — The Sierra Nevada

This view is taken from a point near the pass where the Southern Pacific Railroad crosses the range. The snowy Sierra is a region of beautiful mountain landscapes, but there are a few abrupt slopes.

cactus. For long stretches there is very little vegetation of any kind. In the driest regions, one sees little beside bare, sandy soil, rocky ledges, and mountains.

On crossing the Sierra Nevada into California, however, the scene changes. There one comes into a region of abundant rainfall, as shown in Fig. 146, and the vegetation suddenly becomes luxuriant. The western slope of the mountains is covered with magnificent forests. The rest of the journey (p. 132) is through the fertile Valley of California to the prosperous cities on San Francisco Bay.

The railroad follows the straightest possible route, and keeps to the passes between the peaks. The high points that are reached, however, and the

remarkably clear air allow views of places scores of miles away. From the highest point on the railroad in Wyoming one can sometimes see Pike's Peak in Colorado (Fig. 117). Measure this distance on Fig. 121.

Yet the scenes along this route are not all just as they used to be; for two important changes have taken place in

3. Two important changes in the vegetation since 1849

the vegetation and the life dependent upon it. The traveler now comes to many thriving towns and villages surrounded by orchards and gardens, with rich fields of alfalfa, grazing cattle and sheep, and prosperous homes near by. More productive districts than



©Ewing Galloway

Fig. 117. — Pike's Peak from the "Garden of the Gods" in Colorado

Unlike the great volcanic peaks of the Pacific coast states, the mountains of Colorado rise from a high plateau, and do not, therefore, appear so high as the elevation given on the map suggests.

these are seen scarcely anywhere in either the East or the South. Again, far distant from any village, one sees now and then a farmhouse with a large barn near it, stacks of hay in the fields, and, in the growing season, thriving crops of wheat or kafir corn and alfalfa. The farms are far apart, yet the total number is large.

Then one asks this question: Can it be that man is changing the climate of this region, and that the "Great American Desert" is disappearing?

Certainly a region that was formerly thought to have little value now has thousands of excellent farms, and is supporting tens of thousands of people. How has such a change come about?

Denver, in Colorado, is one of the largest cities in the arid region; but it has not been built up by changing the climate. Several things have caused its growth, probably the most important being the use of water from a neighboring river.

The Rocky Mountains west of the city are lofty enough to receive considerable rain and therefore to be the source of many important streams, as can be seen on Fig. 121. One of these, the South Platte, flows past Denver. A ditch or canal leads water from it out over the arid plain near the city, and smaller ditches run out from the large one. The river itself has a rapid



Fig. 118. — A sheep ranch in Colorado

Sheep flourish in places where the grass is very scanty. Would you expect cattle to thrive here?

fall; but just enough slope has been given to the ditch to cause the water to flow gently. Thus the ditch, following the direction of the river, soon runs on a higher level than the river does, and the smaller ditches can carry water to many fields along its course. When a field needs water for the growth of crops, one of the smaller ditches leading directly to it is tapped, and the land is flooded; or the water is allowed to run across it in furrows that are a few feet apart. The method followed depends upon the kind of crop under cultivation. Such a plan for watering is called *irrigation*.

As there is danger that the supply of water may not last through the season, *reservoirs* are built to store the water of the spring freshets, which is let into the ditches and on to the land later as it is needed.

Such an arrangement is, of course, expensive, and each farmer pays for the

4. Why Denver has grown up where it is

a. How water is distributed over the land, and the changes it has made

water he uses, just as in a city one pays for the water used in one's house. But the farmers can afford to pay a good price; for on the upper side of the ditch, which is too high to be reached by the water, the land is fit only for grazing,

other districts like it, mining would have been much more difficult and costly at these points.

Naturally, other industries followed farming and mining. The ores containing the metals had to be broken up and melted or treated with chemicals, in order that the metals might be extracted, or *refined*; wheat had to be ground into flour; cattle and sheep had to be slaughtered for meat and hides; and many kinds of machinery and other articles had to be manufactured. Much of this work was done in Denver. As the city grew, it came to be a center for trade and manufacturing for the surrounding district. When the Union Pacific Railroad was built, Denver was too small a town to influence the route chosen; but now it is one of the large cities in the West (Fig. 119), and a great railway center.



© Ewing Galloway

Fig. 119. —The mint and the state capitol, Denver

Which building is the capitol? Many state capitols have domes, in imitation of the capitol at Washington (Fig. 77). In this mint much of our money is coined.

(Fig. 118) and worth only a few dollars per acre at best; while on the lower side there are rich fields of grain, vegetables, and alfalfa, where an acre may be worth several hundred dollars.

With such an abundance of farm products near Denver, other industries were easily developed. In the mountains are many kinds of minerals. Gold is mined at Cripple Creek, and Leadville is a center for gold, silver, and lead. Without the food from the irrigated district about Denver and

b. Other occupations made profitable by these farm products

Salt Lake City, like Denver, was too small to be included on the route of the Union Pacific when it was planned. The land about it used to be even drier than the plain about Denver. But a religious sect known as the *Mormons* moved there at about the time gold was discovered in California and began irrigating the level tract southeast of Great Salt Lake. There are now thousands of acres in this vicinity that are as productive as any land in the United States. The principal crops are grain, fruit,

5. Reasons for the growth of Salt Lake City

sugar beets, and alfalfa; and stock raising is extensive.

The surrounding mountains are rich in metals, particularly copper. Smelting has, therefore, become an important industry. Other kinds of manufacturing have developed, as in Denver, and the city has become an important center for trade.

Great Salt Lake lies a few miles northwest of the city. Although many mountain streams pour their waters into the lake, there is so much evaporation, owing to the dry air, that it never overflows. It has, therefore, grown more and more salty, until it is several times as salty as the ocean. Even one who cannot swim floats upon it readily because the water is so dense with salt. Bathing in its waters is, therefore, a very popular sport (Fig. 120). No fish can live there, however. Can you suggest why?

There are many other irrigated districts along the route of this railway. But how is farming possible in so many other places also?

Mr. Grant's farm in eastern Colorado will serve as an example to answer the question. It is square in shape and contains 640 acres.

How long would a fence be that enclosed it? It is almost as level as a floor, and every foot of it can be plowed except one corner where a brook runs.

He came here in the 'eighties. His first buildings were of sod. When the tough prairie grass was first plowed up, the sod was turned over in unbroken strips sometimes a mile long. These strips were cut up into sections and laid in courses, like brick, to form walls. The roof was made of heavy plank with a little slope, and covered with earth and gravel a foot deep. The better sod houses have glass windows and wooden floors; Mr. Grant's house was of that sort. It was very comfortable, too, in many ways, being warm in winter and cool in summer. What objections do you see to such a home? Mr. Grant's buildings are now all of wood.

Water, of course, was necessary for the family and the animals, and very desirable for a garden. This was obtained from wells by means of windmills; the wind blows almost constantly on these

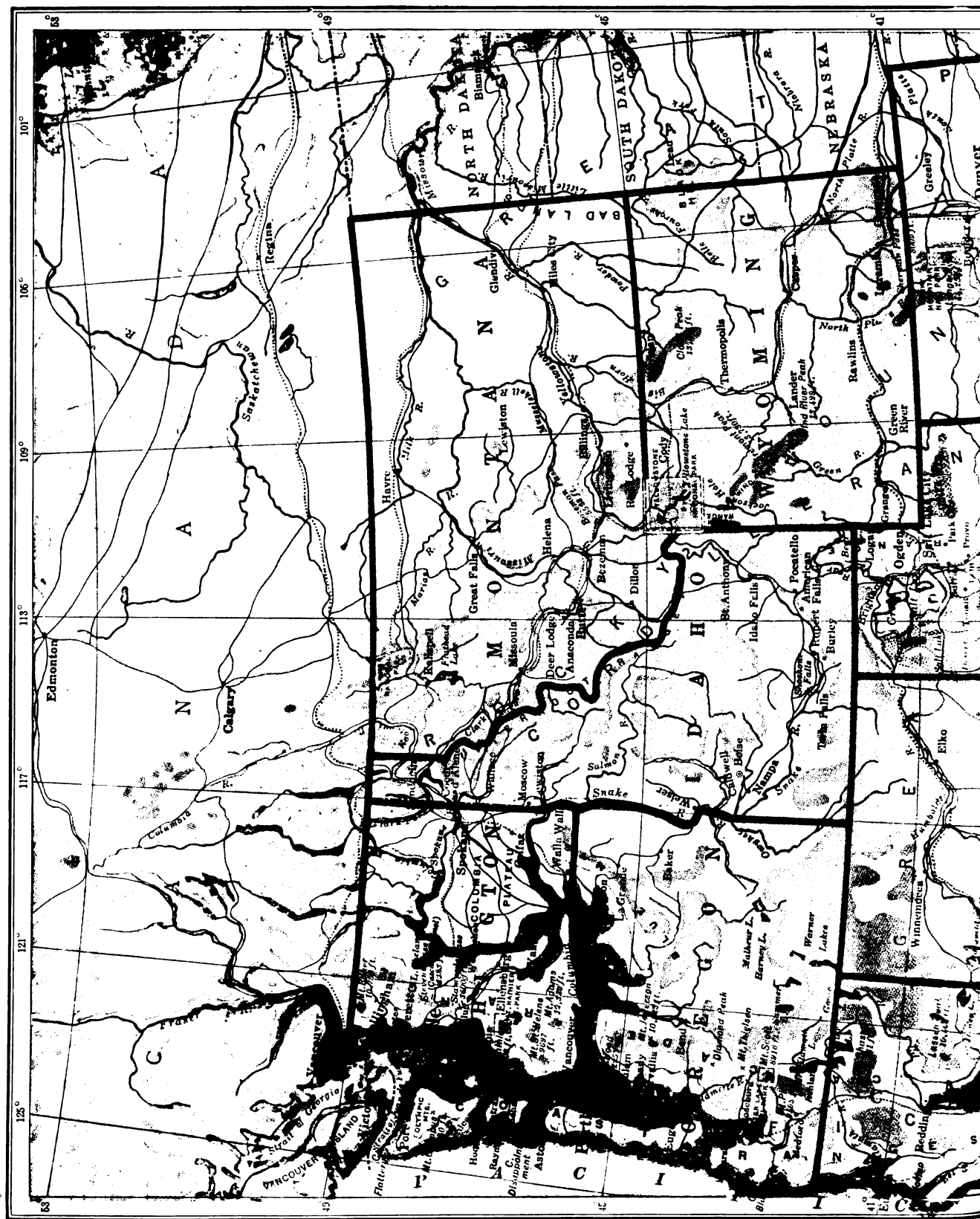
6. How farming has become possible without irrigation

a. The appearance of Mr. Grant's dry farm



© Utah Photo Materials Co.

Fig. 120. — Saltair beach, near Salt Lake City
For a long distance out into the lake the water is very shallow.



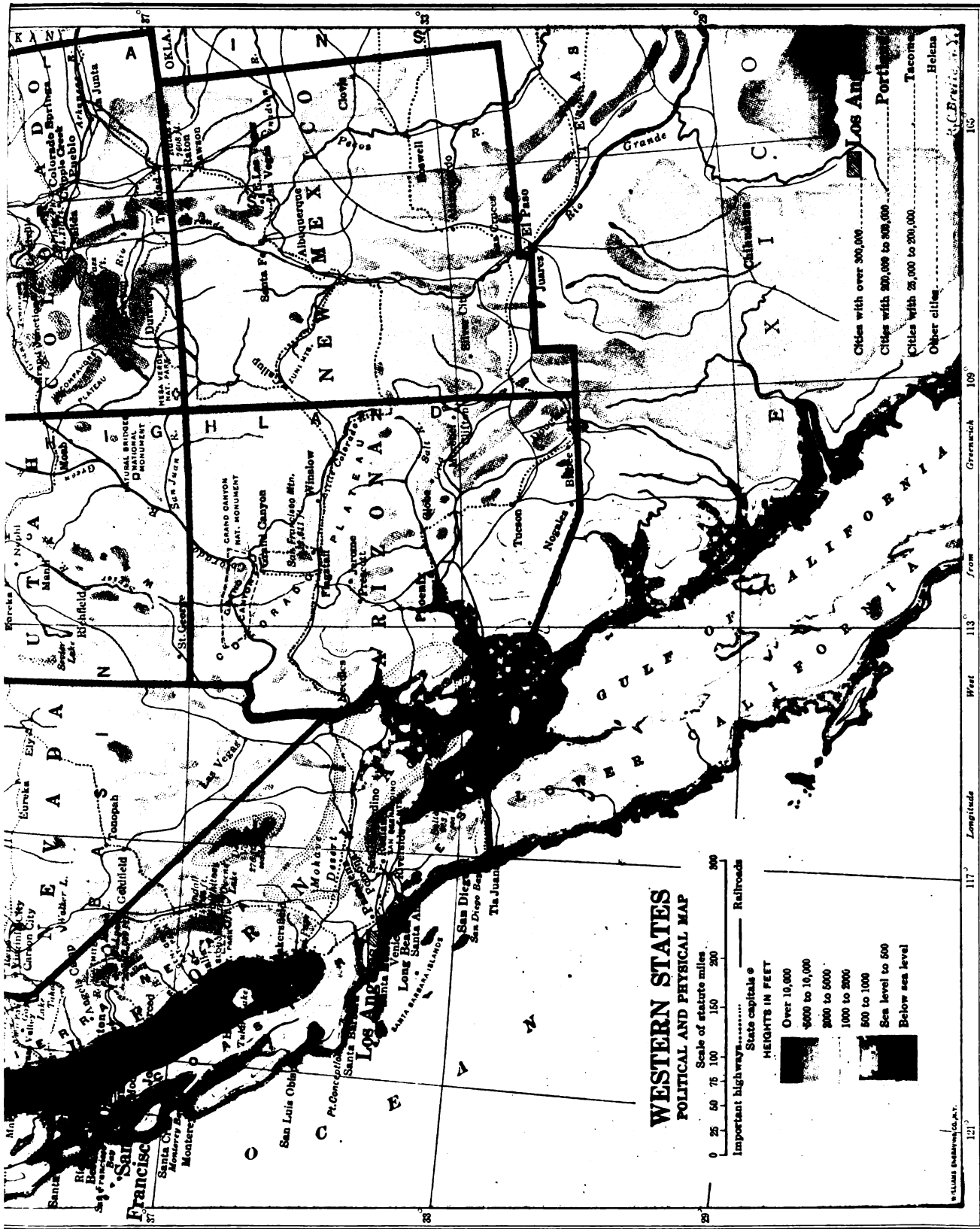
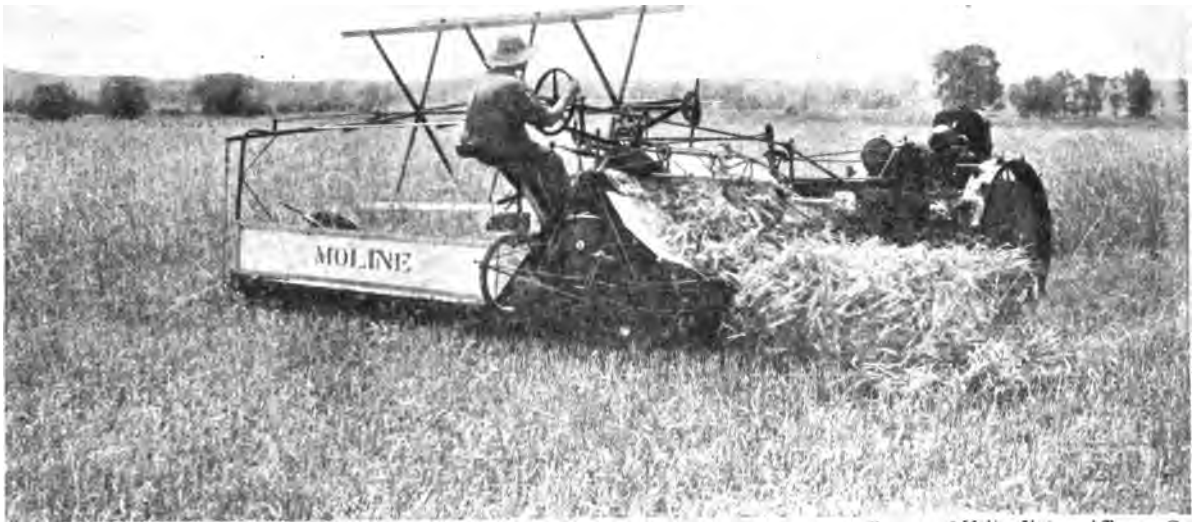


Fig. 121

plains, sometimes very hard for days at a time. Near the creek below the house are two windmills that supply water for the house and garden; these are running most of the time. They pump water into tanks, which are filled every night in the dry season; and

that he must choose only such crops as were suited to a dry climate; and that he must cultivate the soil in such a way as to prevent its moisture from escaping.

So he left about half of the farm in native prairie grass, which forms thick clumps or bunches over the ground, but



Courtesy of Moline Universal Tractor Co.

Fig. 122. — Cutting wheat on Mr. Grant's farm

The machine used here is called a *binder*. It cuts the grain and ties it into sheaves which it leaves behind in the field.

enough is let out into the garden to raise an abundance of potatoes, vegetables, and small fruit. There are flowers, also, about the house, and a few shade trees.

The brook contains too little water to irrigate the fields, and there is no larger stream near. After many failures Mr. Grant learned that he could not farm by the methods he had used in Illinois. After much experimenting he found out three things: that he could raise a good many cattle;

never grows more than a few inches high. During the hot summer it dries up and forms natural hay that is very nourishing. Cattle can live on it all winter, if necessary. Mr. Grant sells some beef cattle every year, and keeps a fine herd of dairy cows.

Some of his crops are for cattle feed. The principal crop is *sorghum*, which looks much like corn. It will live through very dry weather and thrives where there is but little moisture. There is some *kafir corn*, some barley, and a

*b. The crops
that are chosen*

strip of *alfalfa* along the creek. The water there spreads out a long distance through the ground, and the roots of the alfalfa get the benefit even if the moisture is as much as twenty feet below the surface. This is one of the reasons why alfalfa is well suited to a dry country. It remains green through the driest of weather and in that condition is especially good for hogs. As hay it is equal to the finest clover in the East.

All these crops, together with the prairie grass, are sufficient to feed the stock and, as most of the cream is sold, there is some income every month.

Chickens and turkeys also bring in considerable money. They thrive in the dry climate, and require very little feeding in addition to the insects and seeds they find. Enough money comes from these sources and from the sale of beef cattle during the year to support the family.

Mr. Grant sows about 100 acres of wheat every year. This crop brings him his chief income. It is well suited to this climate, because it can get a good start early in the season when most rain falls, and needs but little moisture as it ripens.

It has taken a long time to learn how to cultivate these crops in such a way that most of the moisture will remain in the ground. The chief thing to do is to keep a layer of fine, loose dirt on the top. Moisture from below does not easily work its way through such a layer to the air, and rain

sinks quickly into the soil instead of running away.

Thus, in his selection of crops and in his care of the soil, Mr. Grant has adapted himself to the dry country. In distinction from farming in regions of abundant rainfall, or in arid regions by irrigation, this is called *dry farming*.

Thousands of farmers throughout the semi-arid regions of the West, all the way from eastern Washington

to New Mexico, are now living a life somewhat like this. It is lonely, we must admit, for

c. The loneliness of such a life and some of its pleasures

homes in such a country must be far apart. The nearest neighbors to Mr. Grant are more than a mile away; and the nearest town, which is only a village of 500 inhabitants, is five miles distant. Yet there are many pleasures. Perhaps the greatest is the freedom that Mr. Grant and his family feel. They work for themselves, and can come and go as they please.

On the journey along the Overland Route one passes through remarkably



Courtesy of U. S. Reclamation Service

Fig. 123. — Sagebrush

This is how the desert looks before it is irrigated.

few cities. Name some of the largest towns (Fig. 121), and look up their populations (p. 311). Hour after hour, between stations, one sees from the train such dry farms as that of Mr. Grant, or arid land bearing only sagebrush (Fig. 123). Then one wonders how a railroad running through such a country can pay

Some of the attractions of San Francisco and surrounding country

1. Products of the Valley of California

most of this valley. The many streams, however, make irrigation possible.

Most of the products grown elsewhere in the United States are found here. Apples, oranges, peaches, pears, plums, cherries, and figs are abundant, and more grapes are raised than along the southern shores of Lakes Erie and Ontario (p. 81). Nearly all the raisins eaten in the United States come from

this valley. There are many large fields of grain—wheat, oats, rye, and barley; potatoes and sugar beets are common, and rice is cultivated extensively. Alfalfa is one of the leading crops, and there are large numbers of cattle and sheep. The valley is an admirable place for truck gardening, and is one of our most important centers for poultry. Estimate the length and average width of the valley as shown on Fig. 121.

The train reaches the end of the railway at Oakland. There a ferry

2. Excellence of San Francisco harbor

takes passengers across the bay to San Francisco. This bay is the harbor, one of the largest and finest in the world. It is about fifty miles long and from five to ten miles wide. It is said that one of the first Spaniards who explored the Pacific coast reported that this harbor was so large that all of the navies of Spain could play hide and seek in it. The entrance to this harbor, called the *Golden Gate*, is one of our few important gateways to the lands across the Pacific.



Courtesy of California Fruit Growers' Exchange

Fig. 124. — Wrapping California oranges

The citrus fruit industry gives employment to many persons besides those who grow the fruit. These oranges will be shipped in refrigerator cars by fast freight.

expenses; and why there are so many long, heavily laden passenger and freight trains passing each way every day over that dreary stretch.

This question is answered when one crosses the Sierra Nevada into California and approaches San Francisco; for the Valley of California is one of the most productive parts of the earth. Fig. 146 shows that the rainfall is heavy in northern California and on the western slopes of the Sierra, but light over

Many cities and towns are located around the bay. Name some of them, and find their populations (p. 311). San Francisco (Fig. 125) is the largest, and has a very striking location. Note in Fig. 121 how nearly it is surrounded by water. There are many high hills in the city, for the Coast Ranges almost entirely surround the bay.

Among the leading industries in the city are the refining of sugar and meat packing. The raw sugar is brought from the Hawaiian Islands (p. 147).

Many people of foreign birth live in the city, as in the large cities of the East; but there is an especially large Chinese section, called *Chinatown*. Scarcely any white people dwell in this section, and the customs of the people are much the same as in China itself. Why should so large a number of Chinese have collected here?

One who has made the journey across the Western States to San Francisco has seen what a vast arid waste it still is in many places, but how irrigation and dry farming together are changing it. He has noted how they have made it possible to develop extensive mining, manufacturing, and trade, and how many towns and cities have grown up as a result. There are now eight great railroads that completely cross the Western States; since they cross many states to the east also, they are commonly called *transcontinental* lines. Some cross the northern states of this group, others the middle states, and still others the southern. Which of these have we already discussed?

There are three different railways that can be taken on the northern route, all of them branching out from St. Paul and

How the northern route across these states compares with the central route

1. Points of similarity in the arid section



© R. I. Water & Co.

Fig. 125. — San Francisco harbor

You are here looking toward the northeast over San Francisco bay. At the extreme right is an island half way between San Francisco and Oakland. At the extreme left is the entrance to the Golden Gate.

all reaching the Pacific coast by way of Spokane (Fig. 121). One of these, the Northern Pacific, runs through Billings, Butte, and Spokane to Seattle. Trace its course in Fig. 150 and note the states that it crosses. Trace also two other routes that parallel it closely.

Many travelers on this route stop for a visit to Yellowstone National Park in northwestern Wyoming. Here there are hundreds of springs, some only two or three inches deep, and others many feet, which are boiling all the time.

2. Attractions
of Yellowstone
National Park



© Detroit Publishing Co.

Fig. 126.— One of the few buffalo herds left in our country

At one time buffalo were numerous over most of the vast area between the Appalachian Highland and the Rocky Mountains. The Great Plains, because of their vast extent of grasslands, were once the home of millions of them. Many thousand Indians depended on these buffalo to a great extent for their living. White men slaughtered most of them for their hides or for the pleasure of killing. In 1920 there were about 3,400 buffalo in the United States and 5,000 in Canada.

By examining Fig. 146 you can tell whether this region is more or less dry than that along the central route. In Montana the country looks much as it does farther south; there are fully as many irrigated sections, and even more dry farms. Great numbers of cattle and sheep are seen grazing on the prairie grass here, as along the central route. Its value for food is suggested by the report that in one year in the early days 250,000 buffalo hides were shipped out of Miles City alone.

In some of them the boiling water and steam now and then shoot upward with a roar, rising to a height of more than 100 feet. Such springs are called *geysers*; there are scores of them in the park.

Here also is Yellowstone River, whose waters tumble more than 300 feet in one fall. In the canyon which the river has cut below these falls, the rocky banks are 2,000 feet high and beautifully colored. The park is properly called a wonderland.

The law forbids the killing of animals in the park; and as there are thousands of visitors passing through

the park every summer, the wild game becomes tame. Among the larger kinds are the elk, the black bear, the brown bear, and the buffalo or bison (Fig. 126). Back of the hotels, where garbage is plentiful, one can often walk up within a few feet of a bear without alarm—at least to the bear.

The two leading cities on the northern route are Butte, in Montana, and Spokane, in eastern Washington. They owe their growth much less to irrigation than Denver and Salt Lake City on the central

route. Butte is what is called a *mining town*. It is the center of one of the great-

3. Differences
between the
leading cities on
the two routes

est copper-mining districts in the world, having more than 100 copper-mines in its vicinity, many of them within the city limits. One fourth of all the copper produced in the United States is shipped from the Butte region. The main interest of the people, therefore, is mining, and their leading topics of conversation concern work in the mines, the price of copper, the prospect of new mines, accidents in the mines, strikes in the mines, and other events of this kind.

Spokane owes its growth first of all to the rapids and falls of the Spokane River that flows through it (Fig. 127). These furnish immense power for manufacturing to the city. Lumber and planing mills and flour mills are among the largest manufacturing establishments.

The reason for both of these industries is found largely in the climate. The Cascade Mountains in western Washington, which are a continuation of the

Sierra Nevada of California, are lower than the latter, so that the damp winds from the Pacific carry much of their moisture over them and drop it in the Rocky Mountains just north and east of Spokane. On this account extensive pine forests are found in this region. Large quantities of the timber reach Spokane

These winds drop some of their moisture also on the plateau in eastern Washington, but so little of it that dry farming (p. 131) is the principal kind in this section. The yield of wheat, rye, and barley is especially large. This partly explains why Spokane is an important center for flour milling. In addition, there are many mines in the surrounding country, producing gold, silver, copper, and lead; Spokane is a trade and manufacturing center for these mining sections.

Great quantities of fruit are raised on irrigated lands in central Washington east of the Cascades, especially apples and apricots.



Courtesy of Chamber of Commerce, Spokane

Fig. 127.—The falls in the Spokane River at Spokane

Only a small part of the power supplied by these falls is used. Notice what the text tells you about the use of this power.

West of the Cascade Mountains in Washington and Oregon is a lowland corresponding to the Valley of California west of the Sierra Nevada. An arm of the sea, called Puget Sound, reaches far southward into Washington; this corresponds to San Francisco Bay. Several large cities and many

4. How the country west of the Cascades compares with central California

Willamette River, near the point where it flows into the Columbia. The Willamette Valley and the district bordering Puget Sound, with other valleys, form a great interior lowland between the Cascade Mountains and the Coast Range. How do the cities of this region compare in size with those about San Francisco Bay (p. 311)? Trace the course of the Columbia River.

Fig. 146 shows a very great difference in rainfall between these

lowlands. The Valley of California receives

b. The difference in climate and in farm products

a light rainfall, most of which occurs in the winter months. The rainfall is heavy, however, over the lowland region in Oregon and Washington. Much rain falls farther east, also, particularly on the western slopes of the Cascade Mountains. The western portion of both these states, therefore, receives abundant rainfall for agriculture.

Considering how far

north this region is, one might expect the winters to be severe. But, owing to the warm ocean winds, flowers bloom in the lowland throughout the winter, and Puget Sound is always free from ice. The winter temperature is not much lower than that about San Francisco.

With such a climate, almost all kinds of vegetation flourish, including the common grains and a great variety of fruit. The cooler summers and greater rainfall bring about the main differences in agri-



© Asahel Curtis

Fig. 128. — A power dam at the outlet of Long Lake

This plant supplies electricity to Seattle and the nearby region. A large dam has been built here. Some of the water is passed through large pipes to the power house on the right, where it is made to turn water wheels which are connected with dynamos that produce electricity.

towns have grown up about the Sound, the most important of which are Seattle and Tacoma. Both these cities are beautifully situated on the shores of the Sound within plain view of the great volcanic peak of Mt. Rainier (Fig. 136). Locate them, and name other cities near by.

Portland (Fig. 129) is another large city of the Pacific Northwest, situated in Oregon 100 miles from the coast on the

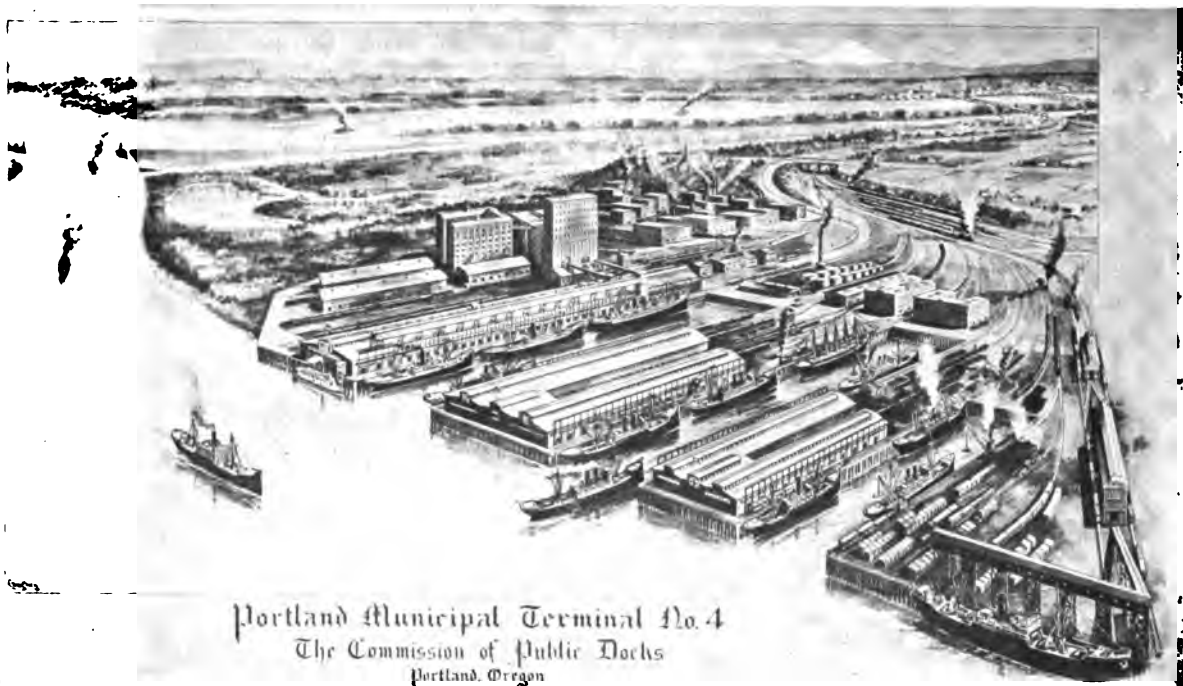
a. The location and population of the chief cities

culture between the Pacific Northwest and central California, but some of the same crops are grown, especially in the Willamette Valley.

Lumbering and fishing are two other especially important industries in this region. The climate and soil together have produced trees such as are never seen in the East or South. The Pacific coast is the land of big trees. The largest are in the Sequoia National Park in California, not far from the famous Yosemite Valley. Many trees here are as large around as an ordinary living room, and several are over thirty feet in diameter. Measure off such a circle. These trees are thousands of years old.

In Washington and Oregon a large

part of the area west of the mountains is forested, and while the trees are smaller than those just mentioned, many of them are nevertheless giants (Fig. 130). The Douglas fir, which is the most valuable, measures from five to fifteen feet in diameter, and sometimes reaches a height of 300 feet. One of them furnishes enough lumber to build a house. The Sitka spruce is also very large. Until a few years ago, the distance from the East checked any extensive use of these forests; but the trees are now being cut down rapidly for lumber. Washington now manufactures about three fifths of all the shingles made in the United States; and Washington, Oregon, and northern California together are now the principal source of our lumber supply.



Courtesy of Portland, Oregon, Chamber of Commerce

Fig. 129. — A terminal where railways and ocean vessels meet

This is a drawing of the great terminal at Portland, Oregon. The tall buildings are grain elevators. The long, low buildings are warehouses. How is the terminal arranged to permit a large number of vessels to load or unload at the same time? In the distance is seen the snowy peak of Mt. Hood. In what direction, therefore, are you looking?



© Gilliams Service

Fig. 130. — Splitting one of the huge logs in the forests of Washington

Some of the logs are too large to be transported readily and short lengths are split by wedges and a splitting or riving machine.

While there is fishing of various kinds along the Pacific coast, salmon is by far the most important (Fig. 131). The salmon spends most of its life in the ocean, but runs up the rivers in order to deposit its eggs in fresh water. It chooses many streams, but an especially large number run up the Columbia River, where vast quantities are caught. Most of the fish are canned. Probably some of the canned

salmon that you have seen came from the canneries near Portland or from cities on Puget Sound.

If one goes West by a southern route, one may start either from Chicago or Kansas City or from New Orleans, and travel through New Mexico, Arizona, and southern California to Los Angeles. The route lies to the south of the Rocky Mountains and the Sierra Nevada. Trace the southern routes on Fig. 121, and learn their names by consulting Fig. 150.

How the southern routes compare with the others

1. Points of similarity and difference

Fig. 146 indicates that this country is even more arid than that along either of the other routes. It is also much hotter in summer. At the point where one crosses the Colorado River into California, the temperature sometimes reaches 120 degrees and one's watch becomes unpleasantly warm to hold in the hand. In spite of the dryness and the heat, one sees many irrigation systems,



Courtesy of Columbia River Salmon Cannery

Fig. 131. — Cleaning Columbia River salmon

The salmon are taken to the cleaning rooms and, after all offal is disposed of, the fish are thoroughly washed and scraped.

and much of the land is given over to grazing and some to dry farming. Gold, silver, copper, and lead are mined, but copper is by far the most important



Courtesy of Atchison, Topeka, and Santa Fe Railroad

Fig. 132. — An Indian woman weaving baskets

The Indians of New Mexico and Arizona live in villages and are therefore called *Pueblo* Indians. Pueblo is the Spanish word for village. This woman is making baskets to be sold to tourists. Some of the houses of these people are entered by a ladder. Do you see a ladder in the picture?

metal. Arizona produces more copper than any other state, Montana ranking next to it.

The most interesting side trip is a visit to the Grand Canyon of the Colorado River in Arizona. The Grand Canyon in one section is a full mile in depth, and it is a hard day's climb to wind one's way down to the bottom and back again.

2. The most interesting side trip

The river, fed by waters from the rains and snows of the Rocky Mountains, has cut its way through the rocks of the plateau to this great depth. Nor has it followed a straight channel, but has wound about, so that now the mighty gorge is ten to thirteen miles wide at the point most often visited. There are so many tall, slender cliffs left standing that they often shut the river from view and, when seen from below, seem to be a great number of steep and lofty mountains.

Fig. 146 shows that the central and the northern routes come out west of the Sierra Nevada and Cascade Mountains upon well-watered slopes. But the southern route crosses arid land all the way to the coast.

3. The wonderful progress of southern California

a. Attractions of the climate

There is little rain in any part of California in summer, and the winter



Courtesy of Goldwyn Studios

Fig. 133. — Drying a moving picture film

These men are engaged in drying a film in one of the large moving picture studios in Los Angeles. 200,000 feet of film can be dried in this room in one day.

rainy season in southern California lasts only a few weeks. People boast of 350 days of sunshine there every year. How many are there where you live? The temperature along the coast is cool throughout the summer, while it rarely falls to the freezing point in winter. Thus this region has the advantage of Florida as a winter resort, and is far superior to it for summer residence.

They soon arranged for the water. Not far from the coast are the San Bernardino Mountains, which receive heavy rains in winter. Why could not these mountains be reached with irrigation ditches, the people asked; and why could not some of the rain that falls in winter be stored for use in summer?

Following such plans, dams were built among the hills and mountains, collect-



Fig. 134. — The buildings around Pershing Square, Los Angeles

© Huddleston Photo Co.

On these accounts many people prefer it to Florida, and great numbers make their homes there on account of the climate. This is an ideal place for the production of motion pictures (Fig. 133); for the bright sun, the agreeable temperature, and the freedom from rain make it possible to carry on such work almost the entire year. More than 15,000 persons are usually engaged there in this industry.

Southern California was once a barren desert, even the land within sight of the ocean. That was because the west winds that carry moisture far into Washington and Oregon do not blow there in summer. Yet people saw that the soil was very fertile, and that water, wherever it could be applied to the land, made it very productive.

b. How an arid desert has been made one of the most prosperous parts of the world

ing the winter floods; and ditches many miles long were dug, or pipes were laid, leading the water down to the parched plains. By such means large areas have been changed into gardens of fruit trees with attractive homes. More than one half of the oranges, and nearly all the lemons grown in the United States come from this region; a large part of our olives and English walnuts are raised here; vegetables flourish; and forage crops for cattle and sheep are abundant.

The production of food has favored the development of mining; many minerals have been discovered in this vicinity, including a great quantity of oil. California is now one of the leading states in oil production. Some of the railroads and many of the factories use oil as fuel, and oil refining is one of the leading industries.

The growth in population has been astonishing. In 1850 Los Angeles was only a village, but now it is the largest city in the Western States (Fig. 121). Compare its population with that of San Francisco and Seattle (p. 312). There are also many smaller cities about it, and San Diego, another important seaport, is not far away. Estimate its distance from Los Angeles.

1. State some facts showing the great distances in the West. 2. Why did people formerly hesitate to settle in this section? 3. Show how the discovery of gold in California encouraged travel to the Pacific coast. 4. Describe the early ways of making the journey. 5. Make a drawing to show the mountain systems and plateaus that had to be crossed in going from Omaha to San Francisco. 6. Describe some of the scenes that the pioneers of 1849 must have seen in following this route. 7. What two great changes in the vegetation have taken place since that time? 8. How is water distributed over the land about Denver, and what advantages have resulted? 9. Name some other occupations that have been made possible by these farm products. 10. Explain the reasons for the growth of Salt Lake City. 11. Describe Mr. Grant's dry farm. 12. How are the crops planned and cared for on that

farm? 13. Tell about the loneliness of such a life and some of its pleasures. 14. Name the principal products of the Valley of California. 15. Describe the harbor of San Francisco. 16. Mention some facts of interest about the city. 17. In what ways are the northern routes to the Pacific coast similar to the central routes? 18. Explain some of the wonders of Yellowstone National Park. 19. How do the two leading cities on the Northern Pacific Railway differ from those on the central routes? 20. Name and locate the chief seaports in the Pacific Northwest. 21. Show the difference between the Pacific Northwest and central California in climate and farm products. 22. Name



Photo by Gifford

Fig. 135. — The summit of Mount Hood

The group of climbers in the foreground is resting after the ascent of the lower slopes. What is the elevation of Mount Hood? It can be seen distinctly from Portland (Fig. 129). How long a distance is that?

two other industries in the Northwest and show their importance. 23. How do the southern routes compare with those farther north? 24. State some facts about the Grand Canyon. 25. What

What

attractions are there in the climate of southern California? 26. Tell how this arid region has been made one of the most prosperous parts of the world. 27. Show the growth of this section in population.

farm, as it appears to you. Include the principal fields and indicate the crop in each. 6. Show how you could irrigate a piece of land in your neighborhood, either by a well or a stream. 7. Which of the three routes across the West would



Courtesy of Seattle Chamber of Commerce

Fig. 136. — Mount Rainier (Mount Tacoma)

This picture is taken from a little mountain lake high up on its slopes. Seen from Tacoma or Seattle, this mountain is an almost perfect cone, glistening white with snow. What is its height (Fig. 121)?

1. Let several pupils represent the pioneers of 1849 and debate among themselves the most desirable route to California. 2. Write a letter describing the hardships, as you imagine them, of a certain family in reaching California by the Overland Route before the railroads were built. 3. Many tons of salt are obtained each year from Great Salt Lake. Find how it is secured. 4. Find the diameter of some tree near your school and compare it with the large trees described on p. 137. 5. Make a drawing of Mr. Grant's

**Suggestions
for extra
work**

you now choose? 8. Point out some striking differences between San Francisco and New Orleans. 9. Find out what Western fruits, if any, your grocer sells. 10. Make a collection of different kinds of ores. 11. Trace the waters of the Yellowstone River all the way to the ocean. What states and what cities do they pass? 12. Buffalo Bill used to give exhibitions of early Western life. Describe some of the things done in them. 13. Learn the abbreviation used for the name of each of these states. 14. Many places in the West are noted for their beautiful scenery. Try to secure railroad folders or advertisements telling of the beauties of Glacier National Park; the Yellowstone National Park; Mt. Rainier National Park; Yosemite National Park; the Grand Canyon; Mt. Shasta; Mt. Hood; Lake Tahoe. Compare Fig. 121 with Fig. 150 to find the names of the railroads to which you should write. 15. Compare Fig. 145 with Fig. 146 to see whether there is in general a denser population in the well-watered regions of the Western States than in the arid regions.

VI. DEPENDENCIES OF THE UNITED STATES

Tourists especially enjoy the wonders of Alaska. Imagine that you are planning a visit there. Ships leave Seattle in any season for a ten-day round trip along the southeastern coast of Alaska. Follow the route in Fig. 157. Such a voyage will probably be very different from any other you may have taken.

As you start north you will have the mainland on the right and Vancouver Island on the left. The route lies between the mountainous coast and a wall of islands for nearly the entire distance to Skagway, 1,000 miles. On this account it is called the Inside Passage. Note how islands protect most of the route from ocean storms. With such protection, are you likely to suffer from seasickness on the trip? Along the coast the mildness of the weather may surprise you, for the temperature in winter is warmer on the average than at St. Louis. In the interior, however, the winters are long and cold (Fig. 137).

The winds bring moisture also, making rain and clouds so frequent that sunshine is a treat. It is said that on the average only one out of every four or five days in the year is clear. But the moisture has made possible many of the views you admire. On the right the mountains rise abruptly from 3,000 to 5,000 feet, the summits of some of them wrapped in snow. On their slopes are magnificent forests, while at their bases you are astonished to see plants growing in great luxuriance. The wooded islands are full of game, and fish abound in the waters. Perhaps most strange and beau-

tiful of all are the long, narrow bays carved in the mountains by ancient glaciers. The walls are sometimes so steep and high that sunshine never reaches the water. You see many glaciers at the heads of the bays. What pleasures would you expect on a camping trip in this region?

Near the end of the Inside Passage you reach Juneau, the capital and largest town of Alaska, having a population of 3,500. It is built on the steep slope of a mountain; far above the town glistens the snowy peak. Many of the

Alaska

1. A voyage
to Juneau

2. Things to
be seen about
Juneau



Fig. 137.—Winter in Alaska

This trapper's cabin is near the route of the government railroad to Fairbanks (p. 144). It is fifty degrees below zero, and the owner is chopping wood for his stove. What two facts in this picture prove to you that there is very little wind here in cold weather?

streets lie in terraces, and winding stairways entirely replace others, so that sightseeing is a vigorous exercise. Juneau is the center of a rich gold-mining region. Probably you will visit the Treadwell mines on the island opposite Juneau, where the largest mills in the world for crushing gold ore are located.

One of the most remarkable trips in Alaska is from Juneau northwestward to Seward and then north to Fairbanks. The voyage to Seward covers a distance of about 500 miles. Along this stretch of coast many of the largest glaciers of our continent are found. The greatest of all is the Mela-spina, which borders the water for about fifty miles.

The trip from Seward to Fairbanks, 470 miles, can soon be made over the

3. Facts of interest on the trip from Juneau to Fairbanks by way of Seward

resources. The railroad passes through good farmlands in the broad valleys and will afford an outlet for great quantities of timber to the seaboard cities. There is also much pulp wood, suitable for the manufacture of paper, in the part of Alaska touched by this railroad. Alaska has the most important coal deposits on our western coast; a branch line of the railroad taps the largest coal area. How is this coal likely to be important to us? Note that a few miles to the west of the route is Mt. McKinley (Fig. 138), the highest mountain on the continent. At the end of the route is Fairbanks, the center of a gold-mining region.

In summer there are two other important ways of reaching Fairbanks. From Skagway, at the northern end of the Inside Passage, a railroad leads over the

4. Two other routes to Fairbanks



Fig. 138. — Mt. McKinley

This is the highest mountain in North America. What is its altitude (Fig. 58)? This photograph was taken from a point about fifty miles north of the mountain. The distant mountain in the center of the picture, with clouds gathering around its peak, is Mt. Foraker, 17,000 feet high.

new government railroad. Follow in Fig. 157 this partially completed line.

This portion of the trip is of great interest because it shows many of Alaska's

mountains to White Horse in Canada. From there the journey is by boat down the Yukon (Fig. 139) to its tributary, the Tanana, and up that river to Fairbanks. Trace this route (Fig. 157).

Another but far longer way is from Seattle to the west coast and up the Yukon River to Fairbanks. Trace this route also. The lower portion of the river, which lies in a sandy plain, is winding and so shallow that only small boats can enter. Goods have to be transferred from ocean vessels to river boats at the nearest port, St. Michael (Fig. 157). In spite of these disadvantages, the Yukon has been an important route because it is the chief

passage through the interior. Why are these two routes open only in summer?

Alaskan waters have an abundance of fish and a visit to one of the salmon-can-

ning plants on Kodiak Island, south of Cook Inlet, would be

worth while. The salmon are caught as they go up the rivers in the breeding season. The largest salmon-canning factory in the world is on a stream of Kodiak Island, where 3,000,000 fish are canned in a season. If the average weight of a salmon is eight pounds, how many tons would this make? So large are the fish exports that Alaska furnishes nearly half of the fish products of the United States.

A trip to the Pribilof Islands, far to the west in the Bering Sea, where the seals herd in summer, is seldom undertaken; yet it might well be the most inter-



Fig. 139. — The Yukon River

Steamboats like that shown in Fig. 24 ply up and down this broad river during the "open" season from late in May until early October. For hundreds of miles the river follows a winding course through the mountains, until at length it reaches low, level country near the Arctic circle (Fig. 157). Here in midsummer the sun can be seen at midnight.

esting experience of all. If one ventured there, the first thing noticed on approach-

ing would be the continuous barking of hundreds of seals. Finally out of the fog would rise rocky shores swarming with seal families. This is their summer home and the young are born here. On land the animals are slow and clumsy, and are easily driven in large groups to grounds where they are killed and skinned. So many have been killed that our government protects them now, allowing only one company to take a certain number of skins yearly. How have you seen seal-skins used?



Fig. 140. — Drying sealskins

© Keystone View Co., Inc.

Where do you suppose this picture was taken? On the barren islands in Bering Sea and in most of the western part of Alaska, imported lumber must be used for building purposes. Can you see why?

The United States has important possessions in the tropics as well as in the far North. Porto Rico and part of a group of islands called the Virgin Islands are under our control (Fig. 158). In Fig. 59 estimate the distance of San Juan from New York. A strip of land ten miles wide across the Isthmus of Panama, containing the Panama Canal, is another

Our possessions in the tropics

1. Names and locations of our tropical possessions

principal city, from the Panama Canal; from San Francisco.

Far to the west, across the Pacific Ocean, are the Philippine Islands, one of our most important possessions. Manila is their leading city. How would you reach it from San Francisco? From New York?

These regions have been obtained in different ways. The strip across the Isthmus of Panama was ob-

tained in 1903 from the little republic of Panama. Our

2. How we obtained these regions, and our prospects for keeping them

object in securing it was the digging of a ship canal from ocean to ocean. This great task was completed in 1914.

The Hawaiian Islands used to be an independent kingdom. In 1893 they rebelled against their ruler and formed a republic. Later they asked to be made a part of the United States, and in 1898 became one of our territories.

The future relation of the other islands to the United States is less certain. Porto Rico and the Philippines were obtained as the result of a war with Spain. They had been for a long time

under the rule of Spain; but they were not content with their government, and there had been much trouble and bloodshed. In 1898 the United States went to the aid of the Cubans, who were fighting for their independence. This quickly



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Fig. 141. — A Porto Rican school

The small building just behind the group of children is the schoolhouse. What flag floats over it? Why? What other sign of activity by Americans do you see in this picture in addition to the American schoolhouse? If you can explain the tower on the left, you can answer this question.

possession of the United States in this region (Fig. 158).

Straight west of Central America, far out in the Pacific Ocean, are the Hawaiian Islands, which also belong to us (Fig. 315). Estimate the distance of Honolulu, their

brought on a war between our country and Spain, known as the Spanish-American War, in which we were the victors. Spain then surrendered these islands to us. Cuba is now independent, but Porto Rico (Fig. 158) and the Philippines have remained under our control. We have, however, held out the prospect of independence to the Filipinos as soon as they show that they are able to govern themselves without our help. Self-government there is not easy, for there are more than 3,000 islands in the group, and there are several races among the natives, many of whom are still uncivilized. Yet the people, under our control, have made remarkable progress.

A close relation between our island possessions and the United States brings important advantages both to them and to us.

First of all, they are important as stopping places for our vessels, where repairs can be made and where coal and other supplies can be obtained. We have many ships in different parts of the world, and it is much like reaching home when they enter the port of San Juan, Honolulu, or Manila.

Much more important is our commerce with these islands. Since they lie in the tropics, and have plenty of rain, their most important product is sugar cane. They produce, also, tobacco and coffee; great quantities of tropical fruits; and

many kinds of valuable tropical woods. A very important product of the Philippines is hemp, which is used in making a fine quality of rope, called *Manila rope*. All these things we use extensively, while none of them is produced by us in large enough quantities to meet our demands. On the other hand, we manufacture very extensively, while these islands do little manufacturing. Thus by an exchange of products both sides are greatly benefited. We have seen that one of the leading industries of San Francisco is the refining



Photo by Elmendorf © Ewing Galloway

Fig. 142. — An Hawaiian village

These are the homes of sugar plantation workers on Oahu Island. The houses are owned by one of the large plantation companies.

of raw sugar from the Hawaiian Islands (p. 133). To what ports of the United States would you expect products from Porto Rico to be sent? Products from the Philippines (Fig. 315)?

The Panama Canal is of world-wide importance. Before it was dug, vessels bound from New York to San Francisco had to go around South America. The Canal reduces this distance 8,000 miles.

4. Influence of the Panama Canal

Estimate the distance it saves for vessels from San Francisco to New Orleans.

a. The distance it saves What other important ocean routes that you can think of are greatly shortened by it?



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Fig. 143. — Extracting Manila hemp fiber

The Manila hemp plant really belongs to the banana family. The fiber is obtained by cutting the leaf into strips and pulling these strips over a blunt knife held against the flat side of a board. This process crushes the pulp and leaves the white fiber free and smooth. Nearly all the Manila hemp of the world comes from the Philippines.

b. Its improvement of health conditions The French began a canal here in 1881, but they lost hundreds of men by fever, and never finished the venture. Some of the first things that our government did in preparation for the actual digging were to fill up or drain the surrounding swamp lands, destroy all the mosquitoes possible, build comfortable homes well protected by mosquito netting, and provide good drinking water and a sewerage system. Before this time, Colon and Panama, the towns at the ends of the Canal, were among the most dangerous places on the earth; but they have been

made as healthful as most cities in the United States. Locate these towns on Fig. 158.

The success of these sanitary measures has had a wonderful influence on people's opinion of the tropics. Up to this time, they had supposed that the tropical zone was by nature very unhealthful, and that for this reason it could never prove of much value to white men. This success suggests great possibilities for the future of all these hot lands.

Before the Canal was built, there was little reason for travelers to visit Panama or any part of Central America, and on account of the great danger to health they kept away. The whole region, therefore, was little known. Now the Canal is one of the central points of interest for the whole world, and many persons go there to see it.

c. Its influence on travel The Canal is about forty miles long. It takes about ten hours to pass through it. The vessel, soon after entering, has to be raised eighty-five feet; and it has to be lowered again at the other end of the Canal. This raising and lowering is done by locks, such as are common in canals in the United States (Fig. 84). The chief difference is that, since this is a canal for the largest ocean vessels, the locks are far larger. Can you imagine the view backward from the ship after it has been raised eighty-five feet?

Much of Central America is mountainous, like Mexico (Fig. 58); and one of the disappointments that some people experience as they approach the Canal is that the land about it is so low and level. This is one of the reasons why this was a favorable location for it; yet there

is one place, called the Gaillard Cut, where it was necessary to dig through a hill 300 feet high. This is one of the most interesting parts of the Canal to visit. Can you reproduce some of the conversation that might be overheard on a vessel as it neared and passed through this section?

1. How many tourists be expected to enjoy the voyage to Juneau?

Review questions

2. Name some of the things of interest about Juneau.

3. Some of the points of interest on the journey to Fairbanks by way of Seward.

4. Trace two other routes from Juneau to Fairbanks.

5. What islands off the coast of Alaska are well worth a visit, and what would be seen there?

6. Name and locate our chief tropical possessions.

7. How did we obtain these regions, and what are our prospects for keeping them?

8. What advantages are there in a close relation between these islands and the United States?

9. Explain how the Panama Canal saves distance.

10. Show the influence of the Canal Zone on health in the tropics.

11. How does the Canal influence travel?

1. Describe a glacier. 2. Which would you prefer, a visit to Honolulu, or one to Juneau? Why?

Suggestions for extra work 3. Do you regard Alaska as more or less valuable to our country than the Philippines? Why?

4. The vessels of the United Fruit Company carry their goods

to Galveston, New Orleans, Mobile, Charleston, Baltimore, Philadelphia, New York, and Boston. Trace the routes they would be likely to take to these cities from Panama. 5. What goods



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Fig. 144. — An ocean steamer in the Miraflores Locks, Panama Canal

Note the electric engine that is used to tow vessels through the locks. Compare this view with Fig. 84 to see how the locks work.

would such vessels be likely to take on their return voyages to the tropics?

VII. REVIEW OF THE UNITED STATES

We have seen that the forty-eight states in our Union have been settled chiefly by people who came from the East. First, immigrants from England and other countries of Europe made their homes along the Atlantic coast. Then there was a movement of pioneers westward across the Appalachian Highland and the Mississippi Basin. Finally, settlers pushed across the

Distribution of population

mountains and plateaus of the West until the Pacific coast was reached. Now the 105,000,000 people in the United States are distributed over nearly all parts of the country.

They are, however, by no means evenly distributed. In Fig. 145 you can draw a north and south line through Oklahoma City that divides the United States into

population, we mean that there are as many persons living east of it as west, and as many north of it as south. How far do you live from it, and in what direction?

From the same map you can tell what parts of the country are most densely settled, and what parts have the fewest people. Name the states that are densely

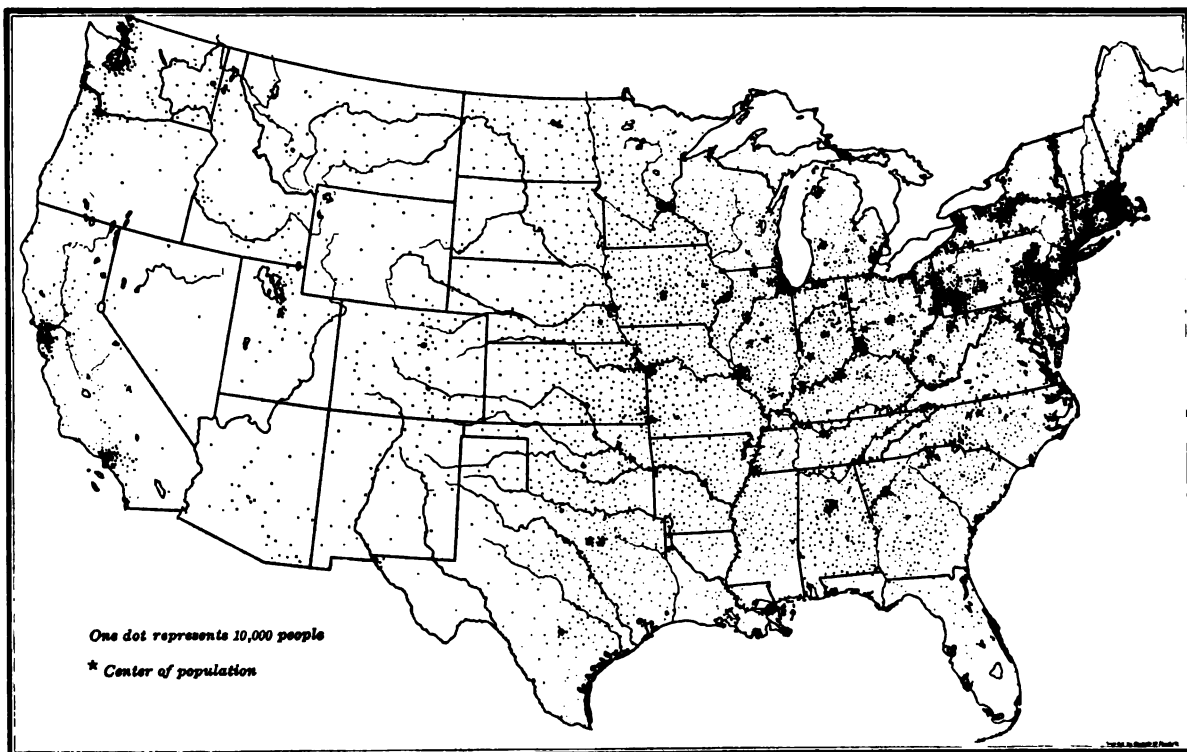


Fig. 145. — The distribution of population in the United States, 1920
Each dot stands for 10,000 people. Find the center of population, represented by a star.

two nearly equal parts. But the people would be by no means equally divided. Very many more would be found east of this line than west of it. While this line would pass through the middle part of the country, the center of population would be a long distance to the east of it. You will find this point in southern Indiana marked by a star on Fig. 145. By saying that this star marks the center of

populated; the ones that are thinly populated.

On p. 311 you will find a list of the twenty-five largest cities in the United States. See how many of these you can name and locate on Fig. 145. How many of them are in the eastern half of our country? Which are in the western half? How do the latter compare with the former in size?

There are many reasons why the East is so much more densely populated than the West. Can you recall several of them? The one that is probably most important is suggested in Fig. 146. It is the distribution of rainfall. In that map, trace the line dividing

Reasons for the difference in population between the East and the West

the arid section of the United States, where there is less than twenty inches of rain, from the well-watered region. Notice how near this line is to the north and south line dividing our country into two equal parts.

What portion of the West is too dry for ordinary farming? How does the rainfall vary over all that area? What states are included in it? What parts of the West have plenty of rain for agriculture? Describe the two kinds of farming that are carried on in the arid region. How does the rainfall vary in the South? In the North Central States? In the Northeastern States?

Probably the next most important reason for the difference in population between the East and West is found in the difference in the extent of mountainous areas in the two regions. Name three systems of mountains in the West that reach at

least most of the way from the Canadian boundary to Mexico. What name is applied to all these ranges together (Fig. 58)? Which states are crossed by the Rocky Mountains? Which by the Sierra Nevada? Which by the Cascade Mountains? In what states are the Coast Ranges? State two reasons why moun-



Fig. 146. — Annual rainfall in North America

tains are likely to be unfavorable to agriculture.

What extensive highland region is there in the East? What states there are mountainous? How do these highlands compare in height and area with those in the West?

The occupation that most influences population is farming. Nearly one sixth of all the workers in our country are engaged in that industry. Wherever conditions for farming are very favorable, there is likely to be a large population; and it is largely because the lack of rain and the moun-

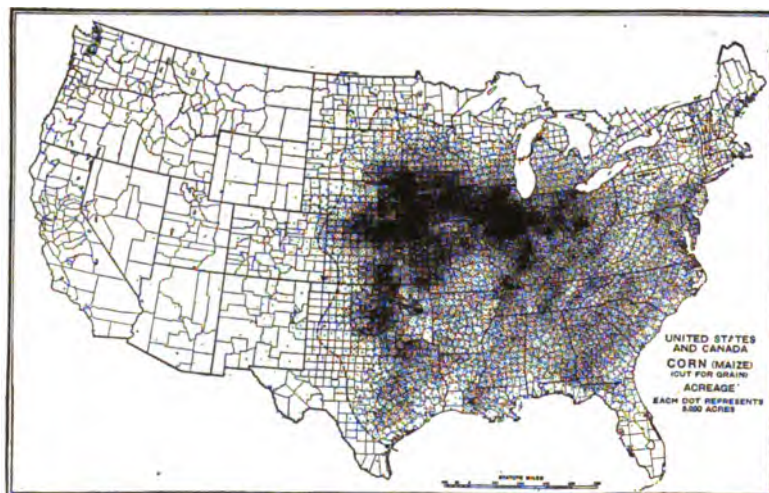
How the different sections are alike in their farm products

some reasons why these are so common? Fruit is raised extensively in all four groups of states. Name the kind grown most extensively along the southern side of Lake Erie (p. 81). What kind is raised on the eastern side of Lake Michigan (p. 90)? What kinds come in large amounts from California, Washington, and Oregon (pp. 132, 135-7)?

The South enjoys many advantages over the other sections for farming. Its abundant rainfall, fertile soil, and warm climate allow it to raise

Advantages for farming that the South enjoys over other sections of the United States

nearly all the crops grown elsewhere in the United States, and several others besides. Its most important crop is cotton, which is grown there far more extensively than anywhere else in the world. Show the area on the map that is suited to cotton, and name the principal cotton states (Fig. 101). It is the only section of the United States that can grow sugar cane. In what state is cane



From *The Geography of the World's Agriculture* (1910)

Fig. 147

tains make many parts of the West so unfavorable to agriculture that it has so few inhabitants. The North Central States take the lead in the production of farm crops; the Southern States rank next.

In spite of many differences in the crops of these sections, there are certain farm products that are found in almost every place where there is farming. One of these is hay; another is cattle, together with milk and butter; a third is poultry; a fourth is potatoes; and a fifth is fruit, particularly apples. Can you suggest

chiefly produced (p. 105)? What outlying possession of the United States produces great quantities (p. 147)? The South also produces rice and large quantities of tobacco; and there is only one other section that competes with it in citrus fruits. What section is that (p. 140)? The South comes nearer supplying itself with all the kinds of food needed than any other portion of our country.

In spite of the advantages of the South for agriculture, the North Central States are our most important section for the

production of food. While corn is grown in most parts of our country, the noted

Why the North Central States produce the greatest quantity of food

Corn Belt lies entirely in these states (Fig. 147). Name the states included in it. The reason for this fact is that the soil and climate of these states are better fitted for this crop than the soil and climate elsewhere. The presence of so much corn makes it possible to fatten great numbers of cattle and hogs, for corn is the best feed for fattening those animals.

Wheat as well as corn is a noted crop of this section. Fig. 148 shows how extensively wheat is grown in the United States. Note how superior the North Central States are to any other entire group in its production. Name the states which lead in this crop. Again, it is the soil and climate that allow such great success in the cultivation of wheat. Thus, we owe our supply of meat and bread more to the North Central States than to any other part of our country.

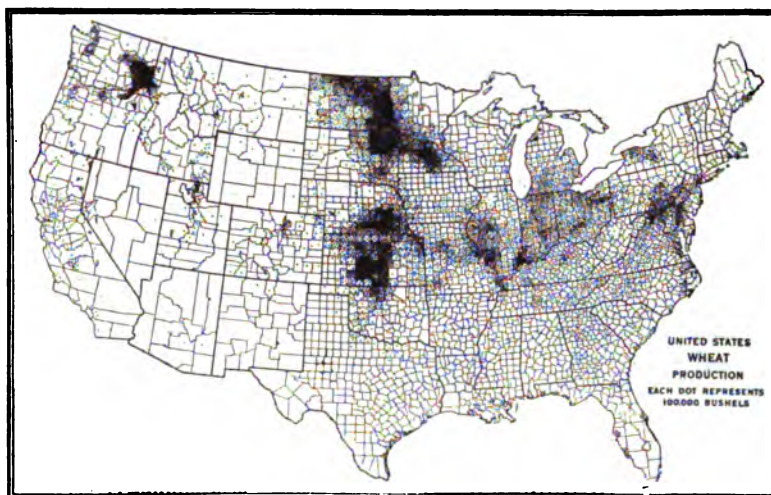
Fig. 145 shows that the Northeastern States and those bordering the Great Lakes are the most densely populated portions of the United States. What is the principal reason for this? It cannot be due to agriculture, because much of the surface is very poor farmland. Show that this is true.

It is partly due to coal, the most important mineral. There is one state in this section that mines nearly as much

coal as all our other states together. Name it. What can you tell about the kinds of coal it produces and the quantity of each (p. 77)? Name some of the "coal cities" (p. 77).

Yet the dense population cannot be due to coal alone, for there are other sections that are well supplied with it. Show what they are (Fig. 149). How does the West compare with the East in abundance of coal?

It is iron ore and other metals, together with coal, that largely explain the dense population there. Iron ore ranks next to



From *The Geography of The World's Agriculture* (1910)
Fig. 148

coal in value as a mineral. Where does that ore come from (p. 78)? Describe the course it takes to reach Detroit; Cleveland; Buffalo; Pittsburgh (Fig. 86). In what state of the North Central group is copper mined extensively (p. 87)? The Western States send large quantities of metal to this section also. Which are most noted for copper (p. 139)?

What use does the East make of iron ore? How are the articles that New England manufactures from it different from

those of Pennsylvania and the states surrounding it (p. 78)? Why is there such a difference?

Skill in manufacturing other things than iron goods is another reason for the dense population of these states. In one section, great quantities of cotton goods,

The same can be said of the North Central States. Yet these two sections now supply only a small part of the ^{Where we are now getting our lumber} wood they require. In many places their forests have been destroyed, as have those west of Lake Huron (p. 86).

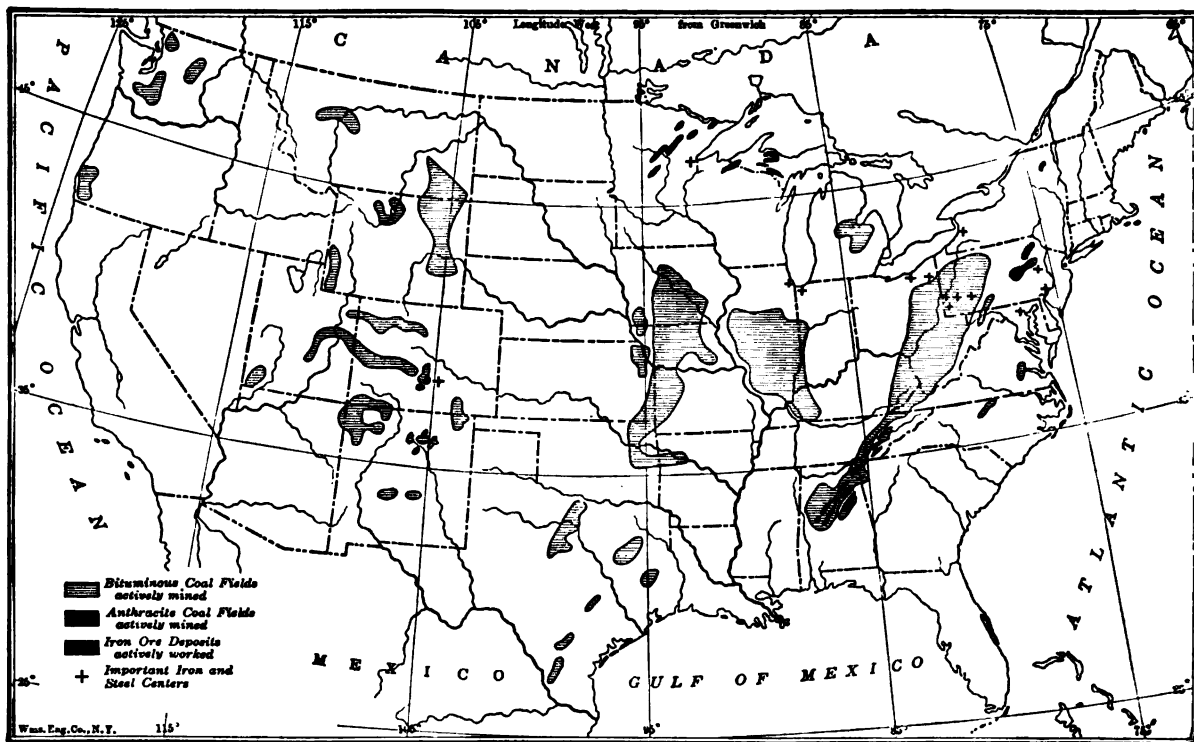


Fig. 149. — Coal and iron in the United States

The only deposits shown here are those that have been mined or are being mined at present.

woolen goods, and leather goods are made, even though that section produces no cotton and very little wool or leather. Which states are engaged in such manufacturing (p. 79)? Name and locate some of the cities that are occupied with one or more of these industries. What kinds of factories are found in Detroit (p. 85)? In Chicago and vicinity (p. 92)? In Minneapolis (p. 95)?

Lumbering used to be a very important industry in the Northeastern States, which still produce considerable timber.

What portion of the South has followed the example of these other groups of states in the destruction of its forests (p. 116)? The timber in the South is being so rapidly exhausted that the Pacific Northwest is now our principal source of supply. What do you remember about the kinds of trees there, and their size (p. 137)?

Aside from wagon roads, the chief means for transportation of goods from one part of our country to another are waterways and railroads. By far the



Fig. 150

most important waterway is the Great Lakes system. How are they connected by water with New York City (p. 73)? Trace the route from Duluth and from Chicago to New York. What goods are carried east on these lakes (p. 84)? What goods are carried west (p. 87)?

The railroads carry many times as much freight as the rivers. Fig. 150 shows what a network of railways we have. What is our greatest railroad center (p. 92)? How can you explain its importance? What other great railroad centers do you find in the North Central States?

Our greatest port is New York. It receives and sends away about as many goods as all our other ports together. Can you give a reason for such impor-

tance? Name one important port northeast of New York, and two others southwest of it. The two leading ports in the South are New Orleans and Galveston. Locate each, and state some of their advantages (p. 114). What port on the Pacific coast is located 100 miles up a river, like New Orleans? Name and locate two other prominent ports on the Pacific coast.

Name the dependencies of the United States and locate each. Which of them seems to you most valuable? Why? What important products are furnished by Alaska?

The value of our dependencies

What products do our tropical possessions supply that cannot be raised in large quantities in our own country? In what ways is the Panama Canal of importance to us?

VIII. OTHER COUNTRIES OF NORTH AMERICA

1. Canada and Newfoundland

Canada is a land of enormous area, being about as large as the United States

shown there, neither trees nor any other valuable kind of plant can grow, because

and Mexico together. Only a narrow strip bordering the United States, however, has been settled. This strip averages hardly 200 miles in width. Estimate its length from ocean to ocean, and the part of the entire area which it forms.

Why have the people kept so close to the southern boundary? Fig. 151 suggests some of the reasons. North of a line that is

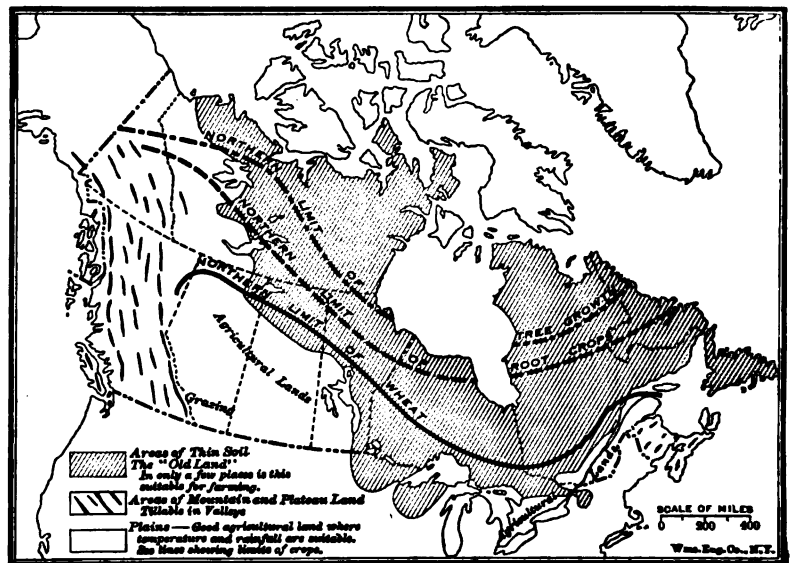


Fig. 151. — Farmlands in Canada

the average temperature, even in July, is under fifty degrees. How much of Canada can you estimate is thus made nearly useless by the cold?

The same map shows what a large portion of the country has very thin soil—in most parts too thin for farming. It is now largely covered with forests, which

In Nova Scotia and New Brunswick (Fig. 157) the surface is rough, as in New England, and much of the land is ill suited to farming. Yet fruits and vegetables, particularly apples, potatoes, and turnips, are grown extensively, and dairying is carried on much as in our northern states.



Fig. 152.—Harvesting wheat, Saskatchewan

© Brown Bros.

will probably, on that account, not be cut down to clear the land for farming. Note how little good land is left along the St. Lawrence River and north of the Great Lakes. The extreme cold and the thin soil are the chief reasons why the settlers of Canada have kept so close to the southern boundary.

A large part of the boundary between the United States and Canada is only an imaginary line, and there is nothing in the surface or climate that suggests a change from one country to the other.

Similarity of
our northern
states and
Canada in
farm products

As might be expected, the farm products are very similar to those of our northern states.

Along the St. Lawrence River and north of New York, Pennsylvania, and Ohio, wheat, rye, and oats and many kinds of vegetables are raised, while grapes, apples, and peaches are common, as in western New York and northern Ohio.

Across from Minnesota, North Dakota, and Montana, an immense area is devoted to wheat. Oats and rye are also important crops, as in those states.

Just to the east of the Rocky Mountains, in Alberta (Fig 157), it is dry; much of the land there is on that account given over to cattle and sheep, as it is in western Montana, while the irrigated sections produce potatoes, alfalfa, and fruits.

In British Columbia the correspondence continues, the chief products in the fertile valleys being, as in Washington, apples, pears, plums and other fruits, hops, and vegetables, while grazing is common in the dry sections.

and the west winds that blow regularly across it make the coast climate surprisingly mild in winter. Flowers bloom in the gardens at Victoria and Vancouver (Fig. 157) all the year round. East of the Rocky Mountains the west winds



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Fig. 153. — Apple-blossom time in Nova Scotia

Can you see any differences between this country scene and those near your home? Will pupils in all sections of our country answer this question in the same way?

Montreal used to attract winter visitors by building magnificent ice palaces, and many people came to associate Canada with the Arctic regions, even in summer. They could understand why southern Ontario might raise products similar to those of our northern states, for it lies as far south as many of them and its climate is made mild by the surrounding lakes. Other portions of Canada, it was thought, could never produce much because they lay so far north.

Recent years have greatly changed this impression. British Columbia is farther north than northern Maine, but the North Pacific Ocean is twenty degrees warmer than the North Atlantic,

have little influence on the temperature, and the winters are very cold. At Edmonton, in Alberta, the temperature sometimes falls to forty-five degrees below zero, and in other parts of the central provinces it is still colder.

The summer, however, is the important season for the farmer, and while frosts last late in the spring and come early in the fall, midsummer days are not only warm but much longer than ours. This latter fact is very important in the maturing of crops. At Edmonton on June 21st the sun shines for about sixteen hours. Thus the long days make up to a certain extent for the short summer and the slant at which the sun's rays strike the earth.

How Canada
is able to raise
crops so similar
to our own

Since only an imaginary line separates much of the United States from Canada, it would be easy for trouble to arise here if there were bad feeling between the two countries. Yet there has been no serious difficulty between us for more than 100 years, and there is not likely to be again. We are too much in need of each other not to be good friends.

Canada has an enormous amount of forest, while ours is rapidly disappearing. There will always be a very extensive demand for wood for building purposes, furniture, farm implements, and paper. A single issue of the *New York Sunday Times* sometimes requires as much as 370 tons of newsprint. One ton of newsprint requires one and two fifths cords of wood, which is about one fourth as much as grows on one acre in the forests of northern New England and eastern Canada. Knowing these facts, you can figure out how many acres of such forest one issue of this paper may consume. Canada must be a great source of supply of wood for us.

Canada has large quantities of coal in Nova Scotia, British Columbia, and Alberta (Fig. 157), though she lacks it in Ontario and Quebec. Ontario, however, has rich mines of iron ore, copper, and nickel north of the Great Lakes; but without coal she cannot refine the ores.

On the other hand, we lack coal in New England and in the Pacific coast states, while we have enormous quantities of it in Pennsylvania and other states opposite Ontario. How admirably, therefore, we can meet each other's needs!

Again, Canada is engaged mainly in agriculture. Montreal, the largest city, and Quebec manufacture lumber, flour, shoes, butter and cheese, railroad equipment, and many other products. Toronto and Winnipeg produce meat, flour, and other foodstuffs, and on the two coasts fish are prepared for the market; but manufacturing on the whole is not exten-



© Ewing Galloway

Fig. 154. — In the Canadian Rockies

The Rocky Mountains in Canada are famous for their scenery. The snow extends farther down the slopes than in our country, and there are many beautiful lakes. This body of water is called Lake Louise.

sive. The United States, however, is becoming so great a manufacturing nation that it must import much food and must find markets in other countries for its manufactures. Thus in a third way we are in a position to supply each other's

wants. As might be expected from these facts, Canada trades more with us than with any other country.



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Fig. 155. — A member of the Royal Northwest Mounted Police

These men preserve order and protect the lives and property of people in northwestern Canada, where there are few people. They often travel long distances to catch criminals or to save lives.

Not only is the settled portion of Canada very long and narrow, but the people are naturally assembled into groups that are separated from one another. Fig. 66 shows that Maine extends so far north as to separate the three coast provinces from Quebec. A vast forest lies between the settled part of Ontario and Manitoba; and the Rockies form a lofty wall between Alberta and British Columbia.

How the different parts of Canada are kept in close touch with one another

What holds these sections together? One thing is the excellent government. The nine provinces form a union called the Dominion of Canada, which is a part of the British Empire. Ottawa, in eastern Ontario, is the capital.

The principal railroads and waterways extend east and west and are very helpful in keeping these sections in close touch with one another. Canada has more miles of railroad, considering its population, than any other country in the world except Australia. Three of its roads extend entirely across the continent. Trace them from coast to coast and locate the leading cities upon them (Fig. 157). How many pass through Winnipeg? Note in what cities they end on the two coasts. The largest cities in Canada are Montreal and Toronto. How many of these railroads run through them?

A great deal of use is made also of the Great Lakes and the St. Lawrence River in travel and commerce east and west. Trace the course of goods from Fort William or Port Arthur on Lake Superior to the mouth of the St. Lawrence River (Fig. 157). This route has some advantages over our own from Duluth to New York City. Can you suggest how?

Newfoundland is not a part of Canada, being an entirely separate colony of Great Britain. Its interests are very different from those of most of Canada, more than one fourth of its entire population being engaged in fishing. The coastal and nearby waters of Newfoundland swarm with codfish; a good share of the world's supply of cod comes from that vicinity. There has been consider-

Why Newfoundland is separately mentioned

able discussion of a union with Canada, but the step has not yet been taken.

1. Compare the area of Canada with that of the United States. 2. Where are

Review the inhabitants
questions located? 3.

Why is only the southern part settled? 4. Show the similarity in products of our northern states and Canada. 5. How can Canada raise crops so similar to our own when it lies so far north? 6. State some reasons for close friendship between Canada and the United States. 7. How are the different parts of Canada kept in close touch with one another? 8. Why is Newfoundland mentioned separately?

1. What greater difficulties have the Canadian

Suggestions railroads in winter than our
for extra railroads have? 2. If you
work were going to emigrate to Canada, what section would you choose? Why? 3. On Fig. 58, trace a water

route north of the mainland of Canada between the Atlantic and the Pacific oceans. Why cannot such a route be used? 4. Compare Fig. 157 with Figs. 58 and 146 to see what parts of Canada you



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Fig. 156. — A store in the Canadian Northwest

There are many of these general stores in the northern wilderness, where trappers and Indians trade. How many kinds of wares do you recognize?

would expect, because of sufficient rainfall and smoothness of surface, to make the best homes for large numbers of people. Are these areas near the section where most of the cities are located?

2. Mexico

If you were planning a short visit to Mexico, there is one place above all others that you would want to see; that is Mexico City.

Plan for a
short visit to
Mexico

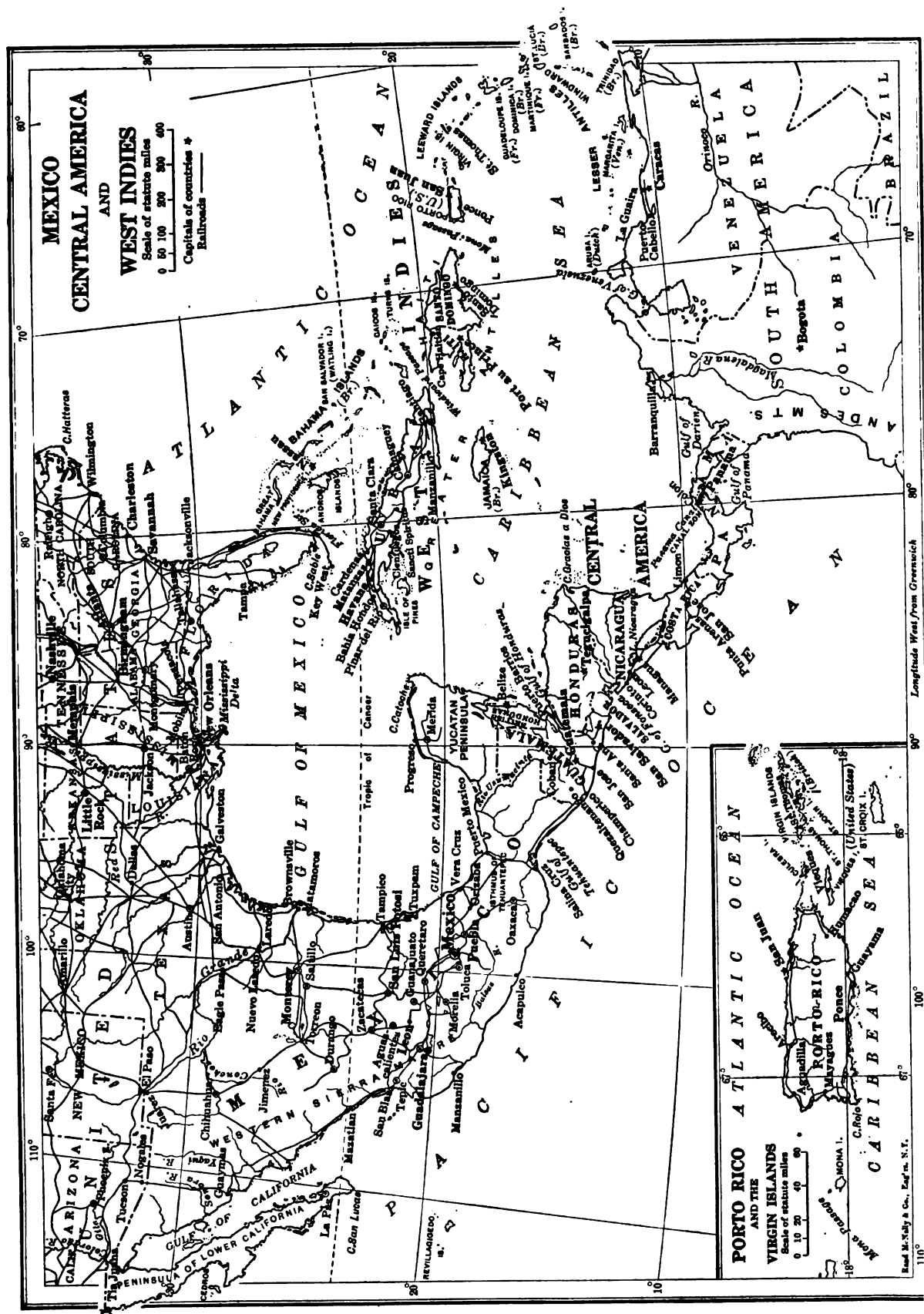
How could you reach it by rail from where you live? On Fig. 59 trace the all-rail route that you might take. If you went from New York by boat, you would probably land at Vera

Cruz on the Gulf coast. Find this port (Fig. 158). Quite possibly your vessel would stop at Havana on the way. Trace this route.

At Vera Cruz you would probably feel very uncomfortable, no matter what time of the year you arrived, for it lies well within the tropics and is on a lowland. Every day, therefore, is hot.



Fig. 157



Estimate its distance south of the tropic of Cancer, the northern border of the tropics (Fig. 59).

You would not care to stop here long, because it is unhealthful as well as hot. The distance by rail from Vera Cruz to

that entirely surround it. The volcanic mountains, Popocatepetl (Fig. 162) and others about forty miles away, can be seen plainly, with their wooded slopes and snow-covered peaks.

One object of special interest would be the drainage system of the city. The city is located in the bottom of a bowl-shaped basin; formerly water from the surrounding mountains sometimes flooded its streets for weeks. On one occasion 30,000 persons were drowned, and the place was for a long time unhealthful on account of the dampness. In 1900 a canal thirty miles long was completed to lead away the waste waters. There are many other objects of interest in the vicinity, such, for example, as old-style buildings in the city, lakes in the surrounding territory, and



Photo by Elmendorf. © Ewing Galloway

Fig. 159. — Mexico City

What signs do you see of a style of building unlike ours?

Mexico City is a little more than 250 miles. On leaving Vera Cruz the road first crosses a low plain where the rainfall is heavy, vegetation is rank, and insects are abundant. Then the road begins to ascend; it has to climb 8,300 feet above sea level before it comes down into the valley of Mexico City. How much more than a mile is that? How would you expect the vegetation and the scenery to change as you ascended?

Mexico City is a very interesting and attractive city. Its parks, drives, and public buildings are especially beautiful, and its scenery can hardly be surpassed. In the distance are mountains

other cities not far distant. This country formerly belonged to Spain; and Spanish is still the chief language. There are many sights and customs in Mexico that would seem strange to us.

Mexico enjoys three great advantages. The first is the delightful temperature in a large part of the country.

Mexico City is located in a valley on the plateau at an elevation of more than 7,000 feet above the sea (Fig. 159).

Although the plateau decreases in altitude toward the north, Fig. 58 shows what a large area is at least 5,000 feet above sea level. Even though much

**Advantages
that Mexico
enjoys**

**1. The attraction of its
climate**

of this area is in the tropics, the tropical heat is not felt here. The temperature of Mexico City and the surrounding region is like that of late spring in most of the United States. The attractiveness of this section is suggested by the great number of its inhabitants, for it is the most densely settled part of Mexico.

The second advantage concerns the variety of farm products. The rainfall

2. Its great
variety of farm
products

is heavy in the south, but decreases toward the north until the part next to the

United States is as dry as Arizona and New Mexico. With such a variety of temperature and rainfall, Mexico grows

about all the kinds of plants found between the equator and the pole. On the hot and damp coastal plains rice, rubber trees, sugar cane, bananas, and other tropical fruits and trees flourish. On the slopes leading up to the plateau are coffee, cotton, tobacco, and other semi-tropical products. On the plateau itself are corn, wheat, beans, and other products of the temperate zone. On the low, level land in Yucatan one of the most important plants is *sisal*, from which binding twine is made. We use large amounts of such twine for

binding wheat and oats. In Yucatan and the arid northwest as many as 30,000 cattle sometimes graze on a single ranch.

The variety and abundance of minerals give Mexico its third great advantage. It has produced more silver than any

other country in the world, and still leads in the yearly output. Its gold, also, is abundant; and it has large deposits of copper, iron, lead, quicksilver, and other minerals.

3. Its variety
and abundance
of minerals

Its oil wells are among the most productive in the world. Vessels sail almost every day from the ports of Tampico and Tuxpam (Fig. 158) with oil for the United States or Europe.

Thousands of our citizens have been attracted to Mexico by opportunities for business. They have invested extensively in cattle ranches in the arid northern section;

Our interest in
the Mexican
government

in oil wells on the Gulf coast; in



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Fig. 160. — Sisal in Yucatan

What plant that you sometimes see in the United States does this plant suggest?

mines in the interior; in railroads; and in rubber, sugar, and coffee plantations. But in recent years there has been much disorder. Battles have been fought in many parts of the country. Small bands of ruffians have wandered about, robbing

and killing helpless travelers, attacking towns, looting homes and stores, and wrecking trains. During these disorders our citizens have suffered severely. Much of their property has been stolen or destroyed; and hundreds of them have

ing bands of Mexicans frequently did so. They drove off horses and cattle, burned houses, and attacked towns. Note how many of our towns are close to the border. Name some of them.

Mexico is a large country, having about one fourth the area of the United States.

Much of its surface, too, is rough. The low-

land along the coast and in the peninsula of

Yucatan is level; but the rest is a vast plateau with many mountains upon it which divide it into sections that cannot easily communicate with one another.

Railroads are hard to build in such a region and there are few of them. There are

about 16,000 miles of railroad, which is only one fourth the average for the

same area in the United States. Good wagon roads are also uncommon. A few years ago a journey from Vera Cruz, the principal port on the Gulf coast, to Acapulco, 300 miles away on the west coast, was made most easily by going to New York by boat, crossing the United States to San Francisco, and then going south by boat. Most sections are no better off for roads now than they were then. Trails take the place of roads, and the burro is the principal carrier.

Such a country is bound to be difficult to govern; for when great numbers of people in so large an area are so com-



Photo by Elmendorf © Ewing Galloway

Fig. 161. — A Mexican family

Of what does their house appear to be made?

been killed or forced to flee for their lives.

The trouble has extended even across our boundary. That line is more than 1,800 miles long, less than one half of which is formed by the Rio Grande (Fig. 59). This river looks like a large one on Fig. 58; but it flows through so arid a country and loses so much water for irrigation in its upper course that its lower part is almost dry in summer. It is as easy to cross the Mexican boundary, therefore, as much of our Canadian boundary (p. 159). Until the government of Mexico became stronger in 1920, rov-

Why Mexico is a difficult country to govern

1. Extent of the country and character of its surface

2. Lack of roads

pletely separated from one another, there can be little acquaintance or friendship among them, and misunderstandings easily arise that lead to war. Only a very strong government can preserve order. The mass of the people, however, are too ignorant to make a strong government possible. Less than one person in five is white, the others being Indians and persons of mixed blood. The whites are usually well educated, but most of the others are unable to read or write; they have little skill or energy in work and little ambition to improve themselves, and they are very superstitious. It is easy for unprincipled leaders to win their support for any sort of violence. In consequence, the government has been very weak. There has, however, been a great improvement in this respect since 1920.

1. Show how you could reach Mexico City from where you live.
 Review questions 2. Describe some of the scenes on the route and in Mexico City. 3. In what way is the climate attractive on the plateau? How can it be so pleasant in the tropics? 4. Why has Mexico a great variety of farm products; and what are the principal crops? 5. What minerals does it produce? 6. How has it caused us much trouble?

1. The rivers of Mexico are short and of little use for transportation. Why? 2. What do you imagine to be the difficulties in traveling overland from Vera Cruz to Acapulco? 3. The country south of our boundary is arid. Does that favor or hinder the success of sudden raids from the Mexican side? 4. Describe some of the views you would expect if you ascended Popocatepetl to the top. 5. Are there as strong reasons for friendship between the United States and Mexico as there are between the United States and Canada? Why?

Suggestions
for extra
work



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Fig. 162. — A country scene in Mexico

Popocatepetl is seen on the right. What do you see in this picture that is shown also in Fig. 20? What are the signs that this is a dry or arid region?

3. Central America and the West Indies

Even though one sails south from New York toward the West Indies and Central America in January, the third morning out is likely to bring warm weather. Then one puts on the lightest summer clothing, the only kind he needs until his return. At Colon, on the coast of Panama, 70 degrees is considered

Attractions of this region to travelers

1. The climate

The growing crops are of great interest to the traveler; for example, the bananas, coconuts, coffee, and rubber.

2. The farm products

Sugar cane, tobacco, and many kinds of vegetables are also raised in most parts of this large region. Jamaica produces great quantities of bananas; Costa Rica is especially noted for bananas and coffee; and Cuba for sugar. Locate each of these countries (Fig. 158).

The appearance and customs of the people are as unlike our own as their

3. The people

fruits and vegetables. Some of the people are well educated, however, with homes, dress, and customs much like ours. These are mostly whites. In most of Central America and in several of the islands Spanish is spoken, as in Mexico; in other islands the language is English or French or Dutch.



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Fig. 163. — Loading a steamer with bananas, Kingston

a low temperature and 95 degrees very hot. This gives a range of about 25 degrees during the year, and represents very well the temperature conditions on the lowlands throughout Central America and the West Indies; for all of these countries lie fully within the tropics. Their highland areas are, of course, considerably cooler. How would you like that kind of climate? Many of our people are attracted by it and go to the tropics for the winter on that account.

The inhabitants of the West Indies understand better than those of the mainland how to entertain foreigners, and their roads are better for touring. Largely for such reasons, travelers from the United States have been more attracted to the islands than to Central America. The most important winter resorts are Havana in Cuba, Kingston in Jamaica, San Juan in Porto Rico, and Nassau in the Bahamas (Fig. 165). Locate each of these islands and cities on Fig. 158.

While there are well educated and prosperous people in all these countries, many of them have little education and would seem to us very poor. In Jamaica, for example, the homes of the natives are the simplest huts, having usually only one or two small rooms, a dirt floor, no chimney, and scarcely any furniture, not even a stove. The chief use of their houses is protection from the sun and rain, though the roof may leak in the wet season, and the floor become muddy. Men and women possess very little clothing, and use but little money. Many living about Kingston supply fruit and vegetables to the city. They generally carry their produce to market in



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Fig. 165. — Avenue of palms, Nassau

baskets on their heads, walking both ways, even though they live ten or fifteen miles out in the country. They start by midnight or earlier with a few coconuts, bananas, short stalks of sugar cane, a live hen or goose, or other articles, weighing in all from twenty to fifty pounds. They spend the morning at the market selling their wares and then return with perhaps twenty-five or fifty cents in their pockets.

Cuba is the most prosperous and the most highly developed of these countries. Importance
of Cuba

Its people are largely of Spanish descent. Many of these Spanish families have been in Cuba for several hundred years. The island



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Fig. 164. — Selling fruit and poultry in Havana

This is what one would see in many of the cities of Cuba. Can you name the kind of fruit this man has to sell? Is the poultry dressed or alive?

has valuable deposits of iron ore and other minerals and its farms produce sugar cane, coffee, tobacco, and hemp. It is one of the greatest sugar-producing regions of the world. Estimate the distance of Havana from the southern tip of Florida.



Fig. 166. — Mt. Pelée, from the water

To many of us the steady heat of these countries would seem a great hardship.

**Hardships
that these
countries
suffer**

**1. From the
climate**

Though the thermometer does not go so high as it sometimes does with us, there is no relief from the heat day or night throughout the year. There are far worse hardships, however, than the heat. The most common winds blow from the northeast and bring much rain, especially to the north and east coasts. Now and then they cause serious floods; and sometimes there is a

drought that is just as bad. In addition, destructive hurricanes are frequent. Farming is, therefore, less certain here than in the United States.

Earthquakes and eruptions of volcanoes have often caused great damage. For example, San Salvador (Fig.

158), the capital city of Salvador, **2. From earthquakes and volcanoes**

which has been destroyed so many times by earthquakes that its site was changed. In 1902 one of the most terrible eruptions ever recorded occurred in the island of Martinique, in the lesser Antilles. After being quiet for about fifty years, Mont Pelée (Fig. 166) suddenly burst forth and completely destroyed the beautiful city of St. Pierre at its foot. In a few minutes all its 25,000 inhabitants were killed by the steam, gases, and hot ashes that descended upon them. Locate this island. More recently Guatemala City was almost entirely

destroyed by an earthquake. Partly on account of earthquakes, buildings in this region are seldom over two or three stories in height.

Another serious danger is that of disease, particularly of fever and other ailments common in the hot and undrained lowlands. The lands along the coast of the Caribbean Sea in Central America are very fertile and could produce vast quantities of food, but the people fear them as they do the plague. They avoid the eastern

**3. From diseases
on the lowlands**

coast in all these countries; as in Mexico, they make their homes on the highlands, which are well toward the west. They therefore lose the use of much of their best soil. The islands suffer in the same way. Sanitary measures must be taken in all these sections before their full value to man can be enjoyed.

Revolutions are as common in some of these countries as earthquakes, and are fully as destructive. All the Central American countries, except British Honduras, are republics. Name them. Cuba also is a republic, and the island of Haiti is divided into two republics, Haiti in the west and the Dominican Republic in the east. But, owing largely to the ignorance of the people in these republics, an ambitious leader bent on rebellion can often find followers, so the government may be overturned at any time. These revolutions result not only in loss of life and property, but in general unrest and disorder that check progress.

Foreigners have been of much help in overcoming some of these difficulties. British Honduras on the mainland,

How foreigners have helped these countries

1. Influence of the English

Jamaica, Trinidad, and several of the smaller islands are British possessions (Fig. 158). These have been free from disorders, and on most of them attention has been given to farming, road building, and sanitary measures, so that the people are fairly

prosperous and happy. Trinidad is the island from which most of the asphalt for our streets is obtained.

The country that exerts the greatest influence here, however, is the United States, though our possessions have a smaller total area than those of the British.

2. Influence of the United States

Porto Rico is under our control (p. 147), as are also several of the Virgin Islands just east of it. Cuba is under our protection; it is not a dependency of ours, like Porto Rico, but relies upon our government for assistance in preserving order when such help is greatly needed.



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Fig. 167. — The market square in Port au Prince, Haiti

Our business men, as well as our government, are doing great services to these countries. Here and there is one who has established a coffee plantation or a cattle ranch or a fruit farm; but the work of the United Fruit

3. Benefits brought about by a large American company

Company is on a grander scale and suggests how extensively these lands may be improved.

The lands held by this company are almost entirely lowlands, many of them on and near the eastern coast, which the natives have long avoided. Some of it is mountainous, but most of the land can be cultivated. It is rapidly being cleared and put to use. The principal crop is bananas. Sugar cane is the product next in importance. Other products are coconuts, cocoa, oranges, and rubber.

a. The farm-lands held by this company

b. The uses it makes of these

Even before our government obtained control of the Canal Zone in 1903, this company had begun to carry out the strictest sanitary rules, taking such measures as the government took in connection with the Canal. Recall several of them (p. 148).

The company does more than till the soil; it transports its products to many countries, and for this purpose it owns or controls several scores of ships.

c. Its transportation of goods and passengers

Until this company was formed, in 1899, there were scarcely any good deep-water harbors on the east

coast of Central America; now there are a half dozen, made by this company, and others have been improved in regions where it has interests. The vessels carry their products to Galveston, New Orleans, Mobile, Charleston, Baltimore, Philadelphia, New York, and Boston. Locate these cities and trace the routes (Fig. 315). The chief cargo is bananas, a single ship often containing 40,000 or 50,000 bunches. The principal port for this fruit is New Orleans. Can you suggest why? New York ranks next.

In spite of its extensive production, the company raises fewer bananas than it wants; so it buys extensively from independent farmers. The company also does a general freight and passenger business, carrying thousands of passengers to and from the tropics yearly.



Photo by Elmendorf © Ewing Galloway

Fig. 168. — Main Street in St. Thomas

St. Thomas, on the island of the same name, is the chief town of the Virgin Islands. Until recently its name was Charlotte Amalie. These islands were purchased by the United States from Denmark in 1917.

The company's land extends up the valleys from the coast, often for a distance of fifty miles or more, and hundreds of miles of wagon roads, tramways, and railroads for transporting men and materials have had to be built.

All together this company has spent about \$200,000,000 in the tropics, and it now employs about 60,000 men. There are other excellent farmlands in these countries that have never been properly cultivated. This company's example is an encouragement to the natives and others to undertake their cultivation. Its many excellent roads must lead to more road building; its provisions for sanitation to more extensive provisions of the same kind. Do you see other good results from its work? Do you think it would have any influence in discouraging revolutions?

d. Its influence

the United States in this area? Locate them. 14. What kind of land has been selected by the United Fruit Company, and on which coast is that in Central America located? 15. Tell about its transportation of goods and people abroad.



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Fig. 169. — Central Park in Havana
The opera house is seen on the right.

1. What temperatures can be expected in these tropical countries? 2. How greatly do they vary in the course of a year? 3. Name their principal agricultural products. 4. Name and locate the principal winter resorts. 5. Why has Central America been less popular as a winter resort than the islands? 6. Describe the life of the poorer people in Jamaica. 7. What peculiar hardships are due to the climate? 8. Tell about the hardships due to volcanic eruptions and earthquakes. 9. What danger is feared from the lowlands, and where is good land avoided on that account? 10. What is the form of government in most of these countries? 11. Why are revolutions especially common? 12. What sections are dependencies of the British? Locate each. 13. What possessions has

What ports in the United States do its vessels reach? 16. Mention some ways in which its work is helpful to these countries.

1. What influence does the United Fruit Company seem to you to have upon the relations between the United States and these tropical countries? 2. Can you name other uses of the banana beside that of food in the raw state? 3. Can you explain why a dozen bananas, which are very perishable fruit and must be brought by fast freight 1,000 miles or more, often cost less than a dozen apples raised in our own orchards?

**Suggestions
for extra
work**

This book tells you about the parts of the earth's surface with which you ought to be acquainted. Part of what you should learn is given in the text. Review what you have already learned on pp. 7, 16, 19-20, and 26 about how to study the text. Other facts that you should learn are given in maps and pictures. A map, as we have seen (p. 34), is really a picture of a part of the earth's surface. For that reason, it tells you many things that it would be very hard to tell you in any other way. Does not a picture of someone that you know tell much more than you can tell in words? Maps ought, therefore, to be studied very carefully.

Whenever you come to a new map, you should try to imagine how the part of the earth that it represents would appear if you could look down upon it from a great height.

Political maps, such as Fig. 46 or Fig. 59 or Fig. 63, tell you less about the appearance of the country than the other maps, because each color on such a map represents a country or a state, and the surface of one *political unit* may look much like that of another next to it. In studying political maps, therefore, you should pay close attention to the size and shape and name of each country or state that is shown.

Physical maps, however, like Fig. 58 or Fig. 174, or combined physical and political maps like Fig. 61 or Fig. 66, show you how high each part of the land is above the level of the ocean. In studying such maps you should try to imagine how the high regions and the low regions would appear. In this book, brown areas are high; the darker

the brown, the higher the land they represent. Green areas are low; the darker the green, the lower the land they represent.

In studying the physical maps, the relief maps, like Fig. 60 or Fig. 62, will be a great help to you. If there is a relief map that shows the same part of the earth's surface that is shown by a physical map, you should turn from one to the other and study them together. You will find that the brown areas really *look* higher on the relief maps, and the green areas lower. Compare Fig. 58 with Fig. 60. Soon you will be so used to the colors that you will not need a relief map to make the green areas look low or the brown areas high. If you are studying a map, such as Fig. 66, that has no relief map corresponding to it, you should find the area that it represents on some relief map that you have already studied. Find on Fig. 62 the area shown by Fig. 66.

When you first look at a map, read the names in large type but do not try to remember them. You are asked to refer to them so often in reading the text that by the time you have finished your study of the text you will remember most of them. Just as you review sections of the text, however, you ought to review what you have learned by your study of the maps. The questions on the maps in this book are to help you in these reviews.

How to
study
maps

1. Political
maps

2. Physical
maps

3. Relief
maps

Map ques-
tions on
North
America

1. What continent joins North America? 2. By what are they joined? 3. What two large bodies of water indent North America? 4. Name a gulf on the eastern coast. 5. Name one on the western coast. 6. Name a gulf that lies within a gulf. 7. Name a bay that lies within a bay. 8. What two peninsulas are on the eastern coast? 9.

What two on the western? 10. Name the Great Lakes in order from west to east. 11. Where is the greatest mountain system of North America? 12. Name and locate four mountain chains that are parts of this system. 13. Where is the second largest mountain system? 14. What can you say of the country between these two mountain systems? 15. What and where is the greatest river system of North America? 16. Trace the longest river. 17. Name the countries of North America. 18. Which has the greatest area? 19. Name the countries that lie within two zones. 20. Which lie within a single zone?

21. How many states are there in the United States? 22. Name the largest state; the smallest. 23. Compare the sizes of the states in the western half with the sizes of those in the eastern half. 24. What states border on the Great Lakes? 25. What states are touched by the Missouri River? By the Mississippi River? 26. What state lies farthest north? South? 27. What state consists of two distinct parts?

28. What states compose the group known as the Northeastern States? 29. How many of them have seacoast? 30. Name the states that border on Lake Erie; on Lake Ontario. 31. Where is the Erie Barge Canal? 32. Where is Niagara Falls? 33. Name and locate five rivers in these states. 34. What are the four largest cities in the Northeastern States? 35. Locate Pittsburgh; Buffalo; Washington; Newark; Providence. 36. Trace the principal highway from Boston to Pittsburgh and name the principal cities through which it passes.

37. Name the states of the North Central group. 38. Trace a highway across this section from Pittsburgh, in Pennsylvania, to Pueblo, in Colorado. 39. Name the principal cities and towns through which this highway passes and the principal rivers which it crosses. 40. Trace highways from Louisville to Kansas City and to Minneapolis. 41. Measure the distances traversed on each of the above routes. 42. Name and locate the four largest cities in the North Central States.

43. Name the states included in the Southern section. 44. Which ones border on the Atlantic Ocean? 45. Which on the Gulf of Mexico? 46. Which on the Mississippi River? 47. Which on the Ohio River? 48. Into which states of

this section does the Appalachian Highland extend? 49. What seaports are there on the Atlantic coast of this section? 50. On the Gulf coast? 51. Name and locate the three largest cities in this section. 52. Beginning at Richmond in Virginia, and using the highways shown on the map, trace an automobile route that would carry you into every state of this section. 53. Name the rivers you would cross and the principal cities through which you would pass. 54. Locate Norfolk, Dallas, San Antonio, Birmingham, Nashville, Fort Worth, and Houston.

55. Name the Western States. What three border on Canada? 56. What three on Mexico? 57. What three on the Pacific Ocean? 58. In what states are there any lowlands? 59. Locate the following mountains: Mt. Hood; Mt. Shasta; Pike's Peak; Mt. Whitney; Mt. Rainier. 60. Name and locate the nine National Parks in these states. 61. Locate Denver, Butte, Spokane, Tacoma, San Diego, Portland, Sacramento, and Oakland. 62. Beginning at Denver, trace an automobile tour extending through at least nine of these states. 63. Name the mountain ranges and the rivers that the route crosses. 64. Through what cities does it pass?

65. How does the width of Canada compare with that of the United States? 66. The length? 67. Where are the highlands of Canada? 68. The lowlands? 69. Give a reason why British Columbia is thinly settled. 70. Tell why Labrador has so few people. 71. Name and locate the two largest cities of Canada. 72. Where is Halifax; Ottawa; Winnipeg; Regina; Edmonton; Vancouver; Victoria? 73. Why are there no large towns near Hudson Bay? Which provinces have the most railroads? 74. About how wide is Alaska from north to south? 75. From east to west? 76. How does Alaska compare in area with the State of Texas? 77. Where does the Arctic Circle cross Alaska?

78. Locate the chief highlands of Mexico and Central America. 79. Name two peninsulas included in Mexico. 80. What waters border on Mexico and Central America? 81. Locate the Isthmus of Panama. 82. Where is the Panama Canal? 83. Name and locate two high mountains in Mexico. 84. Are the principal railways of Mexico on the highland or lowland?

PART III. SOUTH AMERICA

There are many reasons why one might expect South America to have as many inhabitants as North

Why more rapid settlement of South America might have been expected

1. Resemblance to North America

America. One reason is that it closely resembles North America in many respects.

The two continents are of nearly the same size, and of the same general shape. Draw triangles to show their outline.

Each has vast mountain ranges on the western side, and broad, fertile plains in the east. Point to such mountains and plains on Fig. 174. In each there are large navigable rivers reaching into the heart of the continent. Trace the three leading rivers of each continent (Figs. 58 and 174).

In some respects South America enjoys important advantages over North

2. Advantages over North America

America. No part of South America, except the mountain peaks, is very cold; but a large part of

North America, lying in and near the frigid zone, is too cold for farming. Locate the Arctic circle in Fig. 58. In the second place, South America is for the most part well watered. In Fig. 171 note how small are the arid sections. A large part of North America, on the other hand, is very dry (Fig. 146). Finally, gold and silver were discovered in South America hundreds of years earlier than in North America. This gave an early start to immigration to that continent.

In spite of these facts, South America has developed less rapidly than North

America. One of the most important reasons is the climate. Note where the equator and the tropic of Capricorn cross the continent. About how much of South America, therefore, lies in the torrid zone? Thus it is seen that the greater part of the continent is too hot for the white man to work to

Reasons for slow development

1. Character of the climate

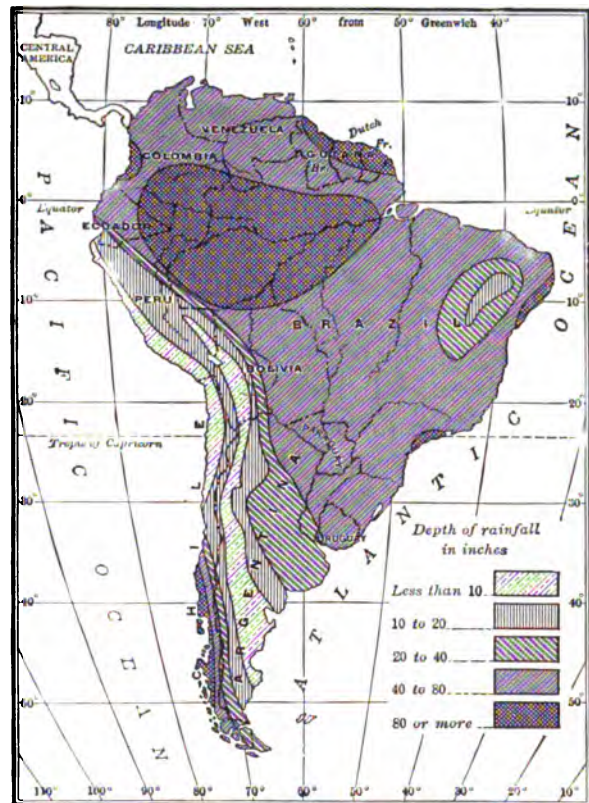


Fig. 171. — Annual rainfall in South America

How does the area of heavy rainfall compare with that in North America?

the best advantage. How does South America compare in this respect with North America?

A second reason for the slow development is the lack of coal. Coal is not entirely lacking, but the amount is not great nor is much of it mined. No region ever develops its industries extensively, especially manufacturing, without coal. Why is coal so necessary?

There are many highly educated people in South America, but they are mainly the whites,

3. The general lack of education

who are outnumbered by the natives. Spanish is the language of most of these countries, but Portuguese is spoken in Brazil. The good taste of the educated people and their interest in progress are shown in the appearance of many of the cities, with their beautiful buildings, streets, and parks. Their interest in independent government is shown, also, in the fact that all the South American nations are republics except the Guianas, which are colonies belonging to three countries in Europe.

More than three fourths of all the people, however, of several South American countries are Indians and people of mixed blood (Fig. 172); and most of these can neither read nor write. They are too ignorant to share in the government, or to be reliable and skillful workmen. It is this lack of education of the common people more, perhaps, than the climate or the lack of coal that has hindered progress in South America.

Americans are likely to visit South America much more in the future than they have in the past. Where should one go, and what should one see? Following are suggestions for a trip

A trip to South America

1. The season to choose, and the method of travel

that might occupy six months. Since South America is mainly in the southern hemisphere, winter comes there during our summer, and we should time our visit so as to reach Chile and Argentina, the colder part, during their summer. We ought therefore, to start in October.

Since there is no railroad connecting the two continents, we go by boat. Indeed, except in the southern half of the con-

tinent, there are few railroads connecting the countries of South America with one another. On that account our trip will be chiefly by boat.

Starting from New York for the western coast of South America, we sail directly for Panama. Six or seven days bring us to the entrance to the Canal. How would the trip from New Orleans or San Francisco compare with this in length?

At the port of Panama, on the Pacific side of the isthmus, a boat may be ready to take us south. If not, we wait for one. From now on boats going our way are likely to be a week or so apart, and if we just miss one, we contentedly wait for the next. There is no need of hurrying

2. The voyage to Guayaquil in Ecuador



Fig. 172. — Half-breed Indians in Peru

or fretting about delays. We must adopt the customs of the people; and they make it clear that time is not valuable to them. How do you suppose they do it?

Where do we make our first stop? Colombia lies on our left; but most of its coast is densely forested and it has no important port. If we come near enough, we may see lighters putting off from the shore to an ocean steamer that is anchored in deep water, laden with rubber, coconuts, and perhaps coffee, cotton, and bananas.

We pass on to Guayaquil in Ecuador, crossing the equator on the way. On the fourth day out from Panama we reach the Gulf of Guayaquil and steam forty miles up the river to the city of that name.

The heat is one of the chief topics of conversation.

The temperature is not much higher than in some of our Southern States in summer; but it rains 120 inches there in a year, and the hot air reeks with moisture.

The city in the distance looks beautiful with its white, marble-like buildings.

Buildings are usually white in the tropics. But a nearer approach brings disappointment; for what seemed to be marble turns out to be split bamboo plastered with mud and whitewashed. This is a land of earthquakes, and houses of this sort are little damaged by them. The cracks they cause in the mud can easily be repaired.

Although Guayaquil is the principal port of Ecuador, and has a population of

nearly 100,000, it is a wretched looking place. Both the streets and the people seem greatly neglected. Until recently tropical diseases caused great havoc here, and vessels stopping at this city were in danger of being placed in quarantine on



Courtesy of South American Publishing Co.

Fig. 173. — Mount Tunguragua, Ecuador
There are several such volcanic cones near Quito.

approaching the next port. That danger is now largely passed, owing to efforts of Americans in making conditions in Guayaquil more sanitary.

Along the coast of Ecuador and in this valley are extensive and very fertile plains. In the harbor we see their products being loaded into vessels for export; sugar, bananas, coconuts, and pineapples. The two things that interest us most are *cacao* and Panama hats.

The trees that bear the long pods filled with cacao beans grow from fifteen to twenty feet high. Plantations of such groves are worth a visit. The dried beans, when ground, produce chocolate, and when the oil is pressed out of the





Fig. 175

chocolate and the remainder is mixed with starch, we have cocoa.

The kind of fiber or straw necessary for Panama hats thrives best on these low coastal plains, and the hats are manufactured in surrounding towns. It



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Fig. 176. — A cacao plantation

How many pods can you find here?

would be interesting to observe these workers making our most expensive hats, some of which sell for several hundred dollars each.

The people in these tropical countries largely avoid the low coastlands. A journey to Quito will bring relief from the heat, for it is located on a plateau 9,500 feet above sea level. How much does that lack of being two miles? The railroad running there climbs 12,000 feet over the moun-

tains before it comes down into the valley where Quito lies.

Of course there is wonderful scenery on the route (Fig. 173). What are some of the views that you would expect? The changing vegetation and farm products are especially interesting.

Quito is nearly as large as Guayaquil, and not much cleaner. But everything is interesting (Fig. 178). This is a land of perpetual spring, and the contrasts are surprising, often wonderful. In one field the Indians may be harvesting ripe grain, while in one adjoining it the grain is green, and in a third they may be plowing and sowing for future harvests. In the same orchard there may be peach trees bearing blossoms, green fruit, and ripe fruit. Since there is no change of seasons, any stage of growth may be reached at any time.

In the valley everything is green; but the snow-capped mountain peaks tower in the distance; and at night the glow of fire in the crater of the volcano Cotopaxi can be seen. Find its height (Fig. 174).

Would you like to take an automobile trip or a drive out into the country? This could hardly be done owing to lack of roads; in fact, there are hardly any roads at all. Even in the city, an automobile is almost useless, because there are few blocks where it can run; and in the country there are only bridle paths.

The lack of roads is one of the serious difficulties in South America. People in Colombia living in the valley of the Magdalena River or at Bogota, the capital, find it next to impossible to reach the Pacific coast of their own country by land. They must go around by way of the Panama Canal. What prevents their

4. The journey to Quito

5. In and about Quito

going across country, even though there are no roads? Examine Fig. 174 to see.

We stop at only two places on the coast of Peru. The first is Callao, the port of Lima. Callao itself is of little interest; for the low coastland north and south of it for hundreds of miles is arid. Some sugar cane, cotton, and rice are grown by irrigation. Lima is of interest as the capital and largest city of Peru, and also as the old Spanish capital of South America. The Spaniards were attracted to this region by the gold and silver mines, and the city contains many buildings, gardens, and paintings that recall the Spanish rule.

What we care most to see is the railroad leading from Callao through Lima to Oroya and the silver and copper mines at Cerro de Pasco (Fig. 177). It is one of the highest railways in the world; at one point it reaches an altitude of 15,600 feet.



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Fig. 177. — The railroad leading from Callao through Lima to Oroya

Locate this railroad on Fig. 175. Does this appear to be a dry or well-watered region? See Fig. 171.



© International Film Service Co., Inc.

Fig. 178. — The Theater in Quito

How does this compare with the height of the highest mountain in the United States (Fig. 58)? It is quite likely that the change in the pressure of the air as you reach the top would make you dizzy. At times you would hold your breath in fear, too, as you looked down from the car windows and thought what would happen if the train left the track.

Returning to Callao and steaming on for a few hundred miles, we come to

Mollendo, which really has no harbor at all, only a *roadstead*, where ocean vessels are met by lighters from the shore for loading and unloading goods and passengers. Yet it is a fair example of most of the ports of South America. In addition to sugar,

b. Why a stop at Mollendo is desirable



© E. M. Newman

Fig. 179. — The old Inca gate at Cuzco

cotton, and copper, which are shipped from many of the other Pacific ports, wool and tin are likely to be seen here. Mollendo is the port for Arequipa, a great center for those products. The tin comes mainly from Bolivia, which mines a large part of the world's supply. The wool comes from the sheep, alpacas, and vicunas that graze in this plateau country. A visit to one of the sheep and alpaca ranches would be interesting.

Two other places of interest are Cuzco and Lake Titicaca (Fig. 175). This lake

has an elevation of about 12,500 feet and is over 100 miles long. On it can be seen both the straw boats used by the Indians and modern steamers.

Cuzco was once the capital city of the Incas, the Indians who ruled here at the time of the discovery of America. Can you explain how the climate and even the desert coast without good harbors may have influenced them to choose this location? The Inca ruins are the great attraction at Cuzco (Fig. 179). Along one street are the remains of fourteen of their palaces.

The next stop along the coast should be either at Iquique or Antofagasta in northern Chile. The land is a desert; Antofagasta gets its water from the Andes by a pipe line more than 200 miles

7. Value of the barren coast of northern Chile

long. The water costs about five cents a gallon. Yet this most barren place on the earth helps to produce a flourishing vegetation in many other countries; for a material called *nitrate of soda*, which is the finest kind of soil fertilizer, is mined here in vast quantities. So much of it is sent abroad that it is one of Chile's principal sources of wealth. The importance of the industry can be judged from the fact that of the 71,000 miners in Chile in a recent year, 44,000 were engaged in mining nitrate of soda (Fig. 180). Our farmers are using it extensively. Have you seen any of it?

Instead of going back to the boat from the nitrate fields, we travel south to Santiago by rail. Chile is a more prosperous country than any other we have visited, with better educated people, and the accommodations for traveling are better.

8. Attractions of the central valley of Chile

It is a long journey from Antofagasta to Santiago. Estimate the distance (Fig. 175). How long is Chile itself? How wide, on the average?

As we approach Santiago, the climate and farm products remind one of southern California. That city is about the same distance south of the equator as Los Angeles is north of it. Show that this is true. Irrigation is necessary here, as it is there, because, as in California, the rains come mainly in winter.

The city is located in the central valley of Chile, a valley nearly 700 miles long but averaging only about thirty miles in width. Most of the Chileans live in this



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Fig. 180. — A nitrate factory, Chile

On the right is a huge pile of nitrate, which is being sacked for shipment.

valley because of its fertile soil and delightful climate. Santiago, with a population of 400,000, is located near its northern end (Fig. 181). From the city the mountains can be seen on both the east and the west. All about are fields of wheat, maize, alfalfa, and vegetables. Vineyards, also, are plentiful. A railroad extends along the valley for its entire length.

The next city which we shall visit is Buenos Aires, in Argentina.

How shall we travel to reach

it? The old route would

probably have been from Santiago down to Valparaiso, its port, and then by boat through the Strait of Magellan or around Cape

9. The journey from Valparaíso to Buenos Aires

a. The route selected



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Fig. 181. — The National Museum, Santiago

South Americans take great pride in their beautiful buildings. The large cities of Chile, Argentina, and Brazil are among the most beautiful in the world.

Horn. But that is a very long voyage, both dismal and dangerous. Southward from Valparaiso it rains more and more, until in southern Chile it rains almost constantly. The severe storms in the Strait of Magellan and about Cape Horn also make navigation very dangerous.

tina come directly to Valparaiso and then take the railroad, makes that port especially important, although the harbor is very poor.

It is a fifty-hour trip from Valparaiso to Buenos Aires. Estimate the distance and the rate of travel per hour. What is

the distance through the Strait of Magellan by boat?

The views are magnificent as one ascends the mountains and looks ^{b. Experiences on the mountain journey} back into the central valley.

The highest altitude reached is about 12,000 feet, where a tunnel, completed by Americans, leads through the mountains toward Mendoza, in Argentina (Fig. 175). Note how near at hand is Mount Aconcagua, the highest peak in the western hemisphere. What is its height? Why would you expect glaciers there?

There may be delays on

this journey, for we are well within the temperate zone, and the train is likely to be snowed in; or avalanches may block the way. On account of such difficulties the road loses part of its value.

We come now into Argentina, often called the United States of South America. Chile was found to be ^{c. Impressions east of the mountains} much like California. Note how closely Argentina resembles our states just east of the Rocky Mountains.

At Mendoza there are vineyards everywhere. This is an arid region, having only about six inches of rain per year



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Fig. 182. — The Trans-Andean Railway

The train is standing at a station in the foothills of the Andes.

Since 1910 it has been unnecessary to take this long voyage, for in that year a railroad was completed from Valparaiso to Buenos Aires. This transcontinental road (Fig. 182) and the Panama Canal together have made the southern end of the continent much less important than formerly. Now many boats that come south through the Canal end their voyage at Valparaiso and start north again. Punta Arenas, the southernmost city in the world, located on the Strait of Magellan, suffers in consequence. Why? Valparaiso, however, gains. The fact that many passengers bound for Argen-

(Fig. 171), but the lofty mountains supply water for irrigation. Traveling east, we first pass through an arid section where the only industry is grazing, particularly the grazing of sheep. Gradually, on account of the greater rainfall, cattle are more often seen; then wheat, and more wheat. If we visit this region during harvest, we see great piles of wheat in sacks in the fields or along the railroad awaiting shipment. Soon other crops appear, including oats, barley, flax, corn, alfalfa, and vegetables such as we raise in the United States. Finally, on the latter part of the journey, where the rainfall approaches forty inches and the summers are hot, corn is the principal product.

Throughout the 600 miles from Mendoza (Fig. 183) to Buenos Aires there is scarcely a break in the landscape. The plain is perfectly flat, with hardly a hill or even a low ridge, and not many trees. Only here and there are clumps of trees, carefully cared for by man. A journey could scarcely be more monotonous. Yet, after leaving the arid section, it is hardly tiresome; for one sees signs of prosperity on all sides.

How fully would this description fit a journey across our own country from the Rocky Mountains through Nebraska and Iowa to the Mississippi River?

We are now in the most active part of South America. Buenos Aires is often called the New York of that continent,

and Rosario, a few hours' journey to the northwest on the Parana River, its Chicago. How far is Montevideo from Buenos Aires?

What makes this section so important? It is, first of all, the climate. In the temperate zones, where there is a decided change of seasons, people have most energy and make most progress. It is also due to the class of people who live here. Most of the inhabitants are white, and very many are immigrants from Europe, including many Italians. In the tropical countries that have been

10. Leadership of Buenos Aires and the region about it



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Fig. 183. — Molding and drying adobe bricks, Mendoza

Can you explain why bricks are in great demand in a country of little rainfall?

named the people move slowly and spend a large part of their time resting. But here we find energy, and we should feel much at home among the inhabitants if they spoke English instead of Spanish.

A third reason for the importance of Buenos Aires is the fact that, located at

the mouth of the Plata River, it is the outlet for a vast and very fertile region including much of Uruguay and Paraguay. The country between Mendoza and Buenos Aires well represents, in its farm products, the area for several hundreds of miles both north and south of it.

shipped abroad; and the machinery and textile goods that are imported. There are ships from all countries, and flags and people of many colors.

Rosario is busy with many of the same products that are important in our own Chicago. What are some of them

(p. 92)? Since the region north of it is not far from the tropics, some of the semi-tropical products that are grown in our Southern States are also to be seen here. Tucuman, far to the northwest, is a noted shipping point for sugar.

There is no need for us to stop in Uruguay; it is so much like Ar-

12. The principal part of Brazil to visit

gentina that it might well be a part of it. Our next stop will be in Brazil. That country has a greater area than the United States, and ranks with Argentina and Chile as one of the leading



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Fig. 184. — The Palace of Justice, Buenos Aires

What do the palms tell you about the climate here?

Finally, the ease of transportation makes this section important. Note how many railroads there are here (Fig. 175). It is easier to build them on these plains than among the mountains. The great rivers, the Uruguay and the Parana, that empty into the Plata, are navigable far inland. The Parana is twenty miles wide at Rosario.

Buenos Aires is a very attractive city, with magnificent buildings, streets, and parks. The harbor is perhaps the most interesting part; here are seen hides and meat, as well as the corn and wheat that are

countries of South America.

If a stranger had only a few weeks to visit the United States, he might be confused about the places he should choose to see. But one feels no such confusion in regard to Brazil. Most of its vast area has very few people. Since a large part of the population is found along the southeastern coast, that is the part for us to visit.

One fact may cause surprise. People in Ecuador and Peru largely avoid the coast, living far up on the highlands. This Brazilian coast is likewise mostly in the tropics (Fig. 175). There are ex-

11. Attractions of this section

tensive highlands a short distance inland, although they are by no means as lofty as the Andes, being only two or three thousand feet in altitude. Yet they are high enough to afford considerable relief from the tropical heat. Why, then, are so many cities located directly on the coast? Name the more important ones.

One reason is that there are regular winds here, called *trade winds*, blowing from the southeast, that bring much relief. Another is that the people are more progressive than those in other South American countries and have made their most important coast cities, particularly Rio de Janeiro



Courtesy of South American Publishing Co.

Fig. 185. — Loading wheat in Rosario

Can you explain the method that is being used here? To what ports in the United States may this wheat eventually find its way?

and Santos, quite sanitary, so that they can live in them with safety.

The leading export of Brazil is coffee; that country grows two thirds of all the coffee in the world. No doubt you have heard of "Rio" coffee, so called because it comes from Rio de Janeiro. The more important port for its export, however, is Santos.

The coffee trees grow best on the highlands, at an altitude of from 1,000 to 2,500 feet. Men take care of the trees very carefully, one man having perhaps 2,000 trees in charge, and a family often from 8,000 to 10,000. The berries in

13. Facts of interest in the coffee section



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Fig. 186. — A coffee plantation in Brazil

Does this plantation appear to be on the highland or lowland, or on the slope between them? What is being done to the coffee berries in the foreground?

which the grains of coffee are found begin to ripen in June. They have to be picked from the trees, dried in the sun as shown in Fig. 186, and then hulled. The harvest is in full swing by September and is about over in November.



Fig. 187. — Rio de Janeiro

The harbor of Rio de Janeiro is one of the most beautiful in the world, with its mountain scenery and tropical plants.

There are many small planters; but most of the coffee is grown on large plantations. Such a plantation has its own villages or houses for the workmen; its own stores, where they can purchase most of their food and clothing; and even its own railroads for carrying the workmen to different parts of the estate and for collecting the berries. A large plantation may employ as many as 1,000 or even 1,800 men. The center of the industry is Sao Paulo, on the upland.

Although it is in the tropics, Rio de Janeiro is the second city in size in South America. The part of most beauty is the

harbor (Fig. 187), and it is the excellence of this harbor more than anything else that has caused the growth of the city. While coffee is the leading product in this region, others of importance are sugar

cane, cotton, and cacao, which grow on the low coastlands and on the slopes of the uplands to the northeast. There are many cattle, also, upon the uplands.

There is a serious drawback to the development of Rio de Janeiro and, in fact, of Brazil as a whole. One can

travel by rail southwest to Uruguay, but one cannot reach the next important city to the northeast, Bahia (Fig. 175), by rail. One can go by rail from Bahia to Pernambuco, but not from Pernambuco to Para, at the mouth of the Amazon. In

other words, the principal centers of population in Brazil, which are hundreds and even thousands of miles apart, are connected with one another only by water. Boats are so much slower than trains, and run so seldom, that the disadvantage is great. What must be the effect upon the trade of these centers with one another? Upon the acquaintance and friendship of the inhabitants of different sections with one another?

Is a trip up the Amazon River advisable? Judge for yourself after learning the principal facts. If the trip is taken, one ought to go all the way to Iquitos

14. Reasons for the growth of Rio de Janeiro

15. A serious hindrance to Rio de Janeiro and Brazil

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in northeastern Peru, which is about 2,600 miles from the river mouth. Find that town on Fig. 175 and trace the route to it. Ocean

16. A trip up the Amazon River

a. The route followed

vessels can reach Iquitos.

The entire voyage, up and back, takes about a month.

Of course it is very hot all the time. How near is the mouth of the river to the equator? No one who is unable to stand heat ought to attempt the voyage.

Very few people live along the river. There are only three important towns during this whole distance, Para, Manaus, and Iquitos. The main stops would be at these places, and one would expect to be on the boat almost the entire time. If one happened to be traveling on a vessel intended more for freight than for passengers, as would probably be the case, there would be a good many discomforts during the voyage. Can you imagine what some of them would probably be?

The principal product of this region is rubber. Brazil once supplied most of the world's supply of rubber. The amount of rubber now produced is about the same as formerly, but so much plantation rubber is now being produced in the East

Indies that Brazilian rubber is today only about a tenth of the world's supply. Para, a city of 275,000 is the center for its transportation. It will be seen awaiting shipment also at Manaus and Iquitos, in fact at almost every stop that is made.

Dyewoods and cabinet woods, nuts, and barks from which we get vanilla and sarsaparilla, are other common articles for export.

The tropical jungle is interesting, if one gets near enough to it to see it well. It must be remembered that this is a wide river, at times so wide that one cannot see across it. Even at Iquitos it is three miles in width. Yet now and then as one comes close to shore the tangle of the forest will be observed. There are many trees, both large and small, and vines of many kinds all struggling for room and so close together that one would often have to cut a path in order to pass through.



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Fig. 188. — Preparing rubber for shipment

The rubber is smoked and dried until it takes the form shown in Fig. 189.

Animal life is just as abundant. The only dangerous beast of prey is the jaguar. Monkeys are common; brilliantly colored birds also, such as parrots; butterflies of gorgeous hues, and numerous other insects. Among the reptiles

are alligators, snakes, and turtles; and there are fish of various kinds. The visitor is sure to see many of these animals. But the many annoying insects, particularly the mosquitoes and fleas, would probably claim more of one's attention.

erected by white men along the larger streams. From these it is taken by boat to larger centers, finally reaching Iquitos or Manaos or Para, from which places it is shipped abroad. How would you like to spend a few days with the rubber collector? Can you imagine adventures that you might have?

On leaving the Amazon we start for home. There are a few other countries that might be visited; but they would show only such products and kinds of life as we have already seen; and we are tired of the heat and the hardships of travel.

As we leave the continent we are impressed with our dependence upon it. Much of our coffee grows there; part of our rubber, also, and our cacao. Many other things, too, are imported by



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Fig. 189. — Rubber ready for shipment

The rubber, as you see, is carried on poles. Notice the holes in the large "biscuits" that are lying in the pile.

The hot, damp, and dark forest is the poorest of places for a home; nevertheless the natives who collect the rubber and other forest products must spend a great deal of time there.

The rubber trees are not found in groves, but are widely scattered, one here, another there. The rubber collector, therefore, usually alone, builds a hut for himself out in the forest, which he makes his headquarters. From it he follows paths from tree to tree, covering a considerable area. The rubber from the trees that he taps is brought to this headquarters, smoked and dried, and then carried or taken in canoes to warehouses

as from South America, such, for example, as vanilla, Panama hats, dyewoods, hides, and wool. As these countries develop and our own population increases, much of our other food may be found there, particularly meats and grains. In return, these countries are buying many of our manufactures and are likely to import far more in the future. The welfare of each continent, therefore, depends greatly upon that of the other.

1. How does South America resemble North America? 2. State some advantages that South America enjoys over North America. 3. Show how the climate of South America

Review
questions

has hindered its progress. 4. Tell about the lack of coal. 5. The lack of education. 6. At what seasons and by what means of conveyance should one visit South America? 7. Describe the voyage to Guayaquil. 8. What scenes would you expect in and about Guayaquil? 9. Give facts of interest on a journey to Quito. 10. In and about Quito. 11. At Callao, Lima, and vicinity. 12. At Mollendo, Arequipa, and other points in that region. 13. How is northern Chile especially important? 14. What are the attractions of the central valley of Chile? 15. What route should be taken from Santiago to Buenos Aires? 16. What experiences might be expected on the mountain journey? 17. What impressions does the traveler receive? 18. Explain the importance of Buenos Aires and the region about it. 19. What are the attractions of that region? 20. Which is the principal part of Brazil, and what makes it so important? 21. State some facts about the coffee section. 22. Give reasons for the growth of Rio de Janeiro. 23. What obstacle checks its growth and that of Brazil as well? 24. What are some of the conditions to be expected on a voyage up the Amazon River? 25. What is to be seen on such a trip? 26. Describe the life of the rubber collector. 27. How are we dependent on South America?

1. How does the shape of Chile compare with that of a yardstick an inch wide? 2. How can you account for this shape? Is it an advantage or disadvantage for a country to be so long and narrow? 3. The condor of South America

**Suggestions
for extra
work**

is one of the largest of birds. Read about its appearance and habits. 4. Make a list of the uses of rubber. 5. Make a list of all the things you eat, wear, or use in other ways, which come from South America. 6. There has been talk of a railroad from Buenos Aires to New York. What parts in South America are already completed (Fig. 175)? Map out the route the remaining parts in South America could best take. 7. Make a sand model of South America, showing the highlands and lowlands, the three great rivers, and locations of principal cities. Use Fig. 170 as a help. 8. What reasons can you give why it might be wise for you to study the Spanish language?

1. Between what oceans does South America lie? 2. With what other continent is it connected? 3. Compare South America and North America in shape; in size; in coast line. 4. Measure the distance in miles across South America from north to south; from east to west at the widest part. 5. In what zones does South America lie? 6. Locate and name four important capes or points on the coast line. 7. In what part of South America are the highest mountains? 8. To what mountain system of North America do they correspond? 9. What highland region of South America corresponds in location to the Appalachian Highland of North America? 10. Name and locate the two great river systems of South America. 11. Are there any great bays, gulfs or lakes in South America? 12. Name and locate the largest country in South America. 13. Locate and describe the shape of Chili; of Ecuador. 14. Judging from the railways and cities shown, which country do you think is most thickly settled? 15. What are the two largest cities of South America? 16. What country in South America has a climate most nearly like ours? Why? 17. What countries have no seacoast? 18. Using the notes in black type on the margin of the pages as a guide, trace again the imaginary journey described in the text. Locate each place mentioned.

**Map ques-
tions on
South
America**

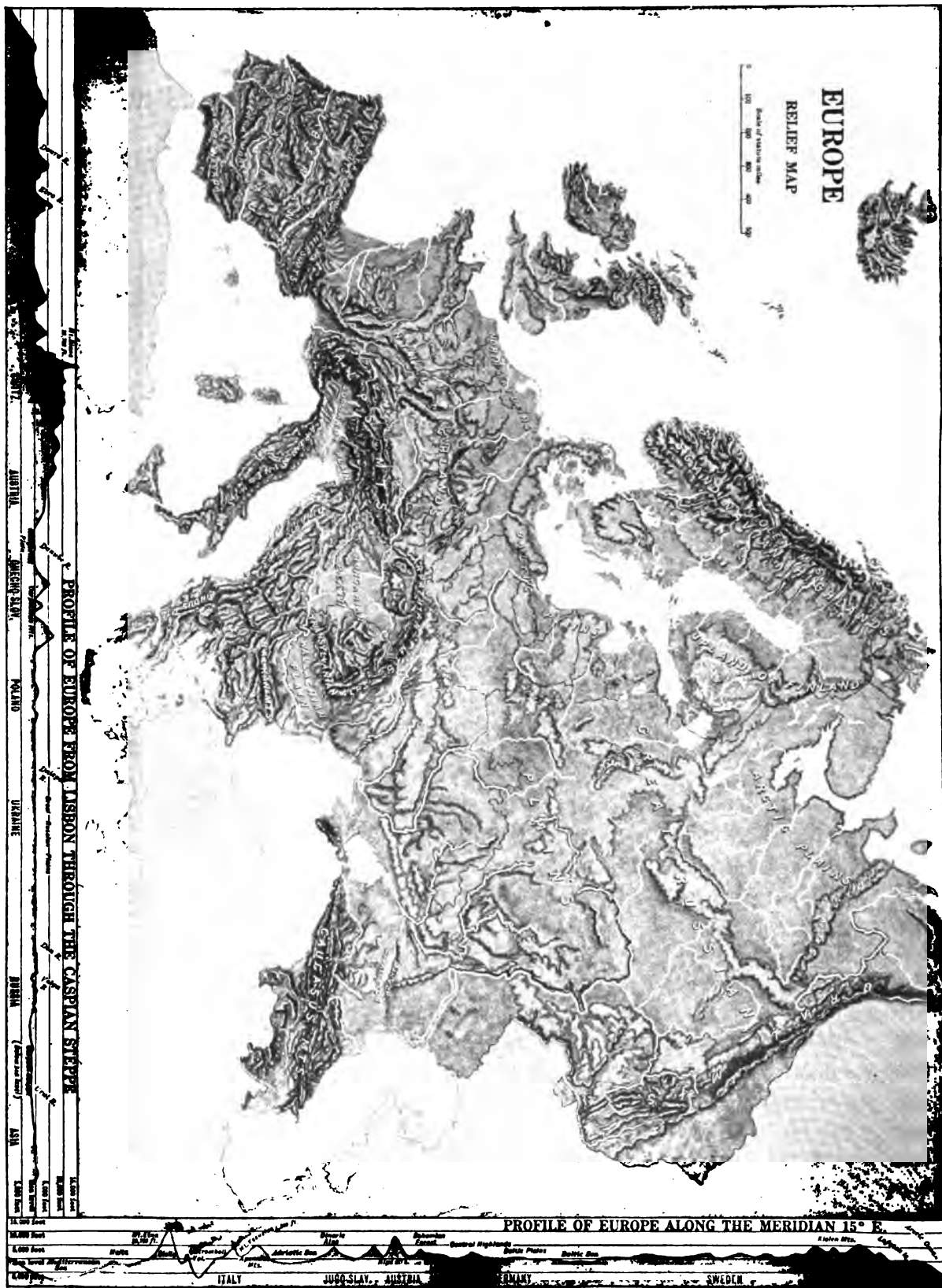


Fig. 190

PART IV. EUROPE

I. GENERAL FACTS

A continent is a very large body of land almost or entirely surrounded by water. North and South America are examples. Europe (Fig. 197) has oceans on its north and west sides, and on its south two great seas. Name

The boundaries of Europe and reasons for calling it a continent

and locate these bodies of water. On the east, however, there is land. Trace the boundary of Europe from the Caspian Sea to the Arctic Ocean. Europe is thus seen to be only a peninsula extending westward from Asia, a little larger in area than the United States. Europe and Asia together are sometimes called the continent of *Eurasia*.

Yet Europe is commonly called a continent. It got that name long ago, when its connection with Asia was not known, and it has kept it partly because of its great importance, for it is one of the most densely populated of all the continents. Note how many separate countries there are in Fig. 198. How does the number compare with that in North America? Which has the greatest area? Which ones have you often heard of?

Locate the British Isles; France; Germany; Russia; Italy. Although Europe is only a little larger than the United States and Alaska, it has more than four times as many inhabitants.

Europe is of great importance, also, because it governs so many other parts of

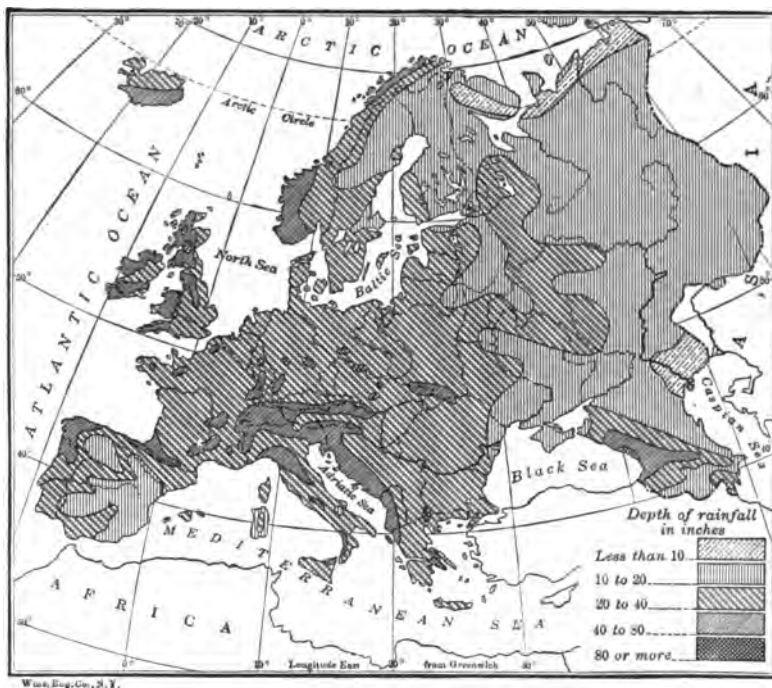


Fig. 191. — Annual rainfall in Europe

the earth. Although Canada governs itself, it is a part of the British Empire. What other parts of North America belong to Great Britain? Guiana, in South America, is divided among three countries of Europe (p. 178). Name and

locate them. Almost all of Africa is governed by the countries of Europe; so also are large areas of Asia, and one entire continent, Australia, is, like Canada, a part of the British Empire.

Again, Europe has been a teacher for all the peoples of the world. Its countries are so much older than most others that,

and mountains together divide the continent into parts that could not easily communicate with one another before the days of railroads, automobiles, the telegraph and telephone. For example, the British Isles form a separate nation because they are entirely cut off

Why it is divided into so many countries

from other people by water. Italy is nearly surrounded by water, while on the north side are the Alps (Fig. 197), which are not easy to cross. What other countries are largely cut off by water, or mountains, or both?

In times past when there was little travel, each group of people thus separated from others learned to speak a different language from its neighbors and to govern itself in its own way.

War has been another cause of the

large number of separate countries. Different groups of people have found it difficult to get on with one another, having lived separately and kept their own customs for many centuries; and after fighting for a time, they have set up independent governments with any boundaries that they have had strength enough to hold. Much of the boundary of Germany is the result of war. Trace it and note how irregular it is.



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Fig. 192. — The Tyrolean Alps

The Tyrolean Alps (Fig. 201) contain some of the most rugged mountains in Europe, rivalling the Swiss Alps (Fig. 220) in beauty. Notice on the map that, while the chief mountain systems of North and South America run north and south, those of Europe run east and west.

until the advances made in North America in the last century, they led all others in discovering the best ways of farming, mining, manufacturing, and doing other kinds of work. Most of the best books, music, painting, and sculpture have been produced there, and many of the best schools have been there.

Make a list of the countries that you find on the map of Europe. One reason why there are so many is that the water

II. NORTHWESTERN EUROPE

1. The British Isles

The British Isles—called, also, the United Kingdom of Great Britain and

Why these islands are a central place of interest in the world

1. Our special interest in them

Ireland — are of special interest to us, because they are our Mother Country.

All the nations of

Europe have sent settlers to us; but

our early settlers came from this kingdom and gave us our English language. Many of our names of places are English, such for example as New York, New Hampshire, and New Jersey. Can you think of others? Many of our books were written there: *Alice in Wonderland*, for instance, *Robinson Crusoe*, *Treasure Island*, and *Ivanhoe*. Many of our ideas of government have come from these islands, and we have more trade with them than with any other country in the world.

The British Isles are the center of the British Empire, which

2. Their importance as the center of the British Empire

includes about a fourth of all the land and nearly a

fourth of all the inhabitants of the earth. We have already noted (p. 196) that Canada and Australia are parts of this empire; so, also, is the great peninsula in southern Asia called India; and so are large portions of Africa and scores of islands in all parts of the world. Many of the colonies look to these islands for guidance in government, commerce, and education. No other

country has so many people dependent upon it.

Since we are so closely related to these isles, many of our people visit them both



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Fig. 193. — The Tower of London

This is one of the most famous prisons in the world. You will find many references to it in your study of history.

for business and for pleasure. If you were to make the voyage from New York, you might be surprised at the direction the ship took. Instead of sailing directly east, it would go northeast nearly all the time. London is almost seven hundred miles farther north than New York City, or much farther north than Montreal. In Fig. 315 follow the

A visit to these islands

1. Some facts about the voyage



Photo by Elmenhorf © Ewing Galloway

Fig. 194. — The River Clyde, near Glasgow

Are these ships completely built? What parts are missing? Explain, from your study of the text, why this river should be famous for its shipbuilding.

course that would be taken. Note how | far toward the Arctic Ocean; and the
near you go to the coast of Nova Scotia. | winds which blow across them from the

The voyage would last from five days to a week or more, according to the speed of the vessel. The port for which you would be bound would probably be Southampton on the southern coast of England (Fig. 201), or Liverpool on the west coast, or Glasgow in Scotland (Fig. 194). Estimate the distance from New York to Liverpool; also the rate of travel if the voyage takes six full days. How does this rate compare with the usual rate by rail?

The climate on the islands might bring another surprise. Although they lie so far north, the temperature is warmer in winter and cooler in summer than in New York state. Less fuel is needed in winter, and people suffer little from the heat in summer. Heavy wraps or light summer clothing, therefore, are less needed there than here.

The Atlantic Ocean and the winds furnish the explanation. The warm waters of the Gulf of Mexico drift north-eastward past Ireland



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Fig. 195. — The Thames River at Hampton, England

This small city in England lies to the west of London, in the farming section of England. This southern portion of the country is quiet, clean, and pleasant, a section that one would want to visit on a tour of the British Isles.

west spread their heat over the land and give it a much milder winter than could otherwise be expected. In summer the ocean is cooler than the land and the winds bring cool air to the islands.

These westerly winds carry an abundance of moisture. Some of the western slopes of the mountains receive as high as eighty inches of rain per year, which is twice as much as falls in most of our eastern states. Farther east the fall is less and in southeastern England the amount is not over twenty-five inches.

London is the city to visit above all others. It is the capital and the center of the British Empire and, next to New York, the largest city in the world.

Possibly the most interesting thing to see there would be the harbor. The city is located on the Thames River about forty miles from its mouth, which is about as far up-stream as ocean vessels can go. For thirty-five miles of that distance, ships from all parts of the earth would be found on both its shores loading and unloading their goods. London is the port into which much of the food for this island is brought. If you were to board the vessels or pass through the warehouses, you would see vast stores of bananas, coconuts or coconut meat, cocoa, coffee, tea,

wines, wheat, flour, corn, rice, sugar, and meat. Make a list of other things you would expect to find. What flags of foreign nations could you recognize?

The street scenes might interest some persons even more. The buildings are by no means so tall as they are in our large cities, nor are street cars common. The



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Fig. 196. — Cheapside, London

This is one of the main streets of London. Many of the important streets of London are the built-up portions of roads that radiate out from the center of London in every direction.

streets are too narrow for them, and omnibuses are used instead (Fig. 196); they can pick their way about more readily. Would you expect to find many foreigners on the streets? Why?



Fig. 197



Fig. 198

Some of the public buildings should be visited. Since London is the capital of the British Empire, many laws are

have a great foreign commerce. How far apart are the latter cities? They are especially well situated

b. In Liverpool and Glasgow

for trade with North and South America, receiving vast quantities of food and raw materials for manufacture, and exporting manufactured articles. In their harbors the great number of masts reminds one of a forest of very straight trees, and the funnels of steamships can be counted almost by the hundred. Many of the ships are unloading wheat, flour, corn, meat, and wool. Cotton bales by the thousand may be seen at Liverpool, although most of them are carried farther inland by ship canal to Manchester (Fig. 201). What countries that you have studied are likely to send these things to Great Britain?



Fig. 199. — Westminster Abbey, London, England

This is one of the most famous buildings in the world. Here are buried many of England's illustrious dead.

made there and the Parliament Buildings in which this is done would be of interest. The British Parliament corresponds to our Congress that meets at Washington (p. 31). Westminster Abbey (Fig. 199) is a church that is noted as the burial place of distinguished men. The palace of the king would be seen from a distance. One of the most famous buildings in the city is the great prison called the Tower of London (Fig. 193).

Liverpool ranks next to London as a seaport. Manchester and Glasgow also

would seem to you dingy and smoky, for they have an enormous number of factories and mills. Shipbuilding is a leading industry; Glasgow is the greatest center in the world for this work. So many ships are built there that even the chance visitor is likely to see the launching of one. The principal articles piled up at the wharves ready for export are woolen, cotton, and linen goods, and machinery of all kinds.

Edinburgh, facing the North Sea and only a short distance east of Glasgow, is

very different in appearance. It is the old capital of Scotland. Here one sees churches and schools, book-stores, publishing houses, government buildings, and beautiful parks (Fig. 200).

c. In Edinburgh and other towns on the east coast

There is less smoke in the air, and everything is cleaner.

The most interesting occupation to a visitor on the eastern coast of England would be the fishing (Fig. 202). The shallow North Sea shuts out the cold currents of the ocean and furnishes excellent breeding and feeding grounds for fish. Since the winters are mild, fishing can be carried on here throughout the year. Accordingly, this is a favorite place for that industry.

A passenger on board a ship crossing the North Sea to Hamburg in Germany once counted 120 fishing boats within a few minutes, although the day was so rainy and gloomy that he could not see far. All together there are about 100,000 men in the United Kingdom engaged in this occupation, most of them in these waters. Can you imagine some of the dangers they must meet in stormy and foggy weather?

Any traveler crossing northern England is impressed with the number of chimneys belching forth black

d. In the mining districts

smoke. Great Britain is a manufacturing country. The chief reason for this is the abundance of coal underground. The raw material, next to coal, that is usually

most valuable for manufacturing is iron ore; and that also is found in large quantities near the coal. For these reasons mining is extensive here, and there are nearly a million men at work underground. The visitor, therefore, would see many miners and mining towns. How could you tell that they were miners, if you saw them on their way to or from their work?

Three principal kinds of manufacturing are carried on in the interior cities. One makes use of the coal and iron ore to produce iron and steel, and hundreds of kinds of metal articles. Birmingham and Sheffield are two cities especially noted for that

e. In the manufacturing districts



Photo by Elmendorf © Ewing Galloway

Fig. 200. — Scott Monument and Princes' Street, Edinburgh

Read the text to see why you would expect Edinburgh to be a more beautiful city than Glasgow.

work, making armor plates for ships, steel rails, firearms, automobiles, and cutlery. Locate them. You can see one reason, now, why shipbuilding is so great an

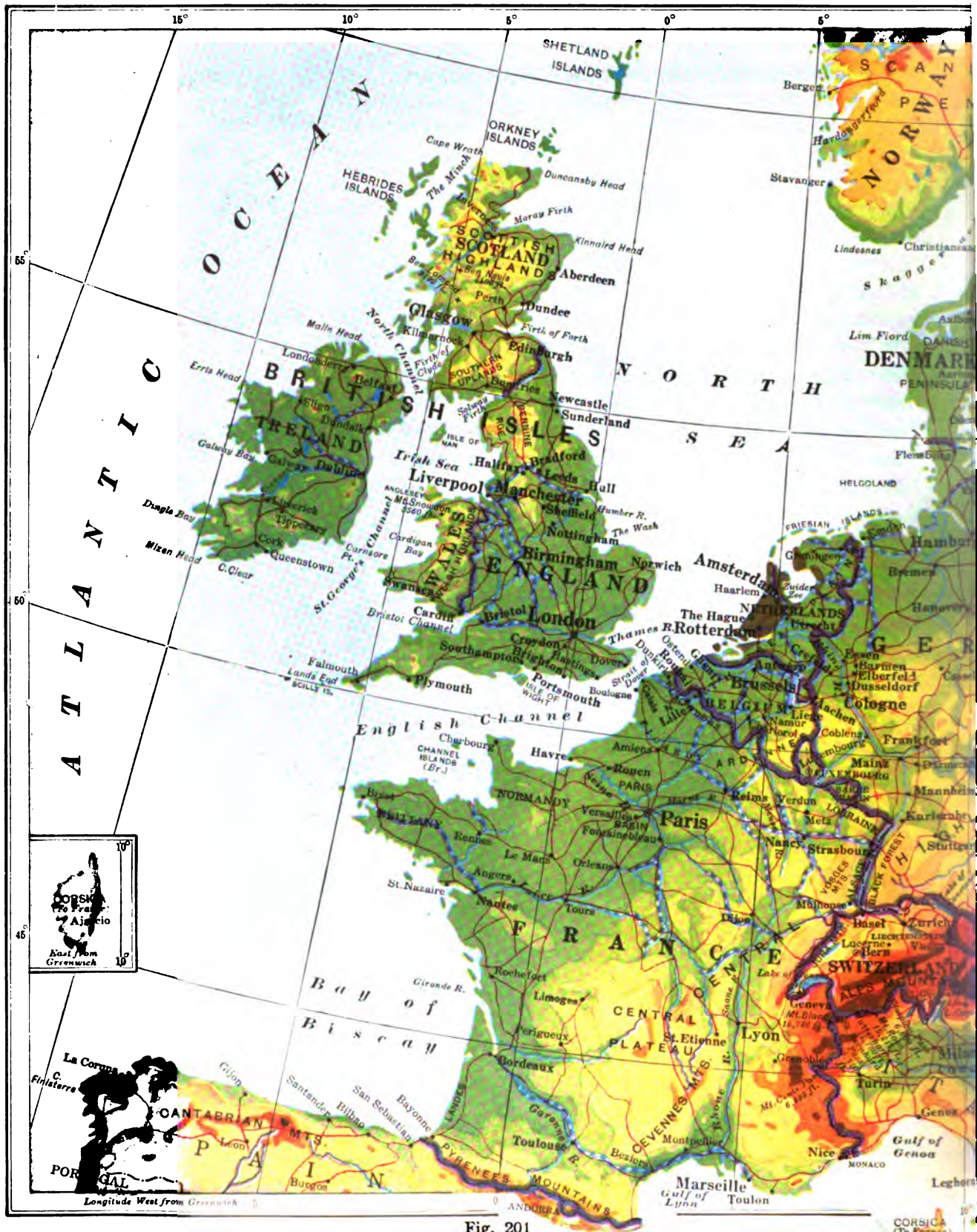


Fig. 201



Fig. 201

industry in Liverpool and Glasgow; the necessary coal and iron are near at hand. Does the chief occupation of Birmingham, in England, explain the name of Birmingham in Alabama?

Another kind of manufacturing here is that of woolen goods. Sheep have always thrived on this island; this led

can make of things made of cotton. The spinning and weaving of wool led to cotton manufacture, and the abundance of coal, used in running the machinery of the mills, has favored both industries. Now the cotton industry is much more important than woolen manufacture. Most of the cotton comes from our South-



Fig. 202. — An English fishing fleet

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long ago to the spinning and weaving of wool. Now the native sheep supply only a small part of the wool used. The leading cities in this industry are Leeds and Bradford. Find them on Fig. 201. What articles can you name that are made of wool?

The third kind of manufacturing here is that of cotton goods. Strange to say, while these islands grow no cotton, an enormous amount of it is here made into thread and cloth. See how long a list you

ern States. The center of the industry is Manchester, which is connected with Liverpool by the ship canal already mentioned.

Central England and southern Scotland are two of the greatest workshops of the world. In these regions the cities are so close together that a person sometimes cannot tell when he is leaving one and entering another. People in the West Indies, southern Africa, India, and many other distant places are very de-

pendent on what goes on here. Why? Do you see now why so much food and raw material are brought into the leading sea-ports, and so many goods made of iron and steel, wool, and cotton are sent forth? Name the principal imports and exports once more. To what extent would there be suffering in the world if the coal miners of England, Scotland, and Wales refused to work?

cover many of the buildings, and green grass and magnificent trees are always in view (Fig. 204).

Some of our most important crops would not be seen: for example, corn, grapes, sugar cane, or cotton; *b. The farm products* the summers are too cool for them. But the most hardy grains and vegetables flourish, such as oats, barley, rye, cabbages, peas, beans, turnips, and



Photo by Elmendorf © Ewing Galloway

Fig. 203. — Lake Aive in the Scottish Highlands

To many visitors the country districts would be the most attractive parts of the

island. There is a beautiful lake district in northern England, and another in Scotland.

4. What one would see in the country
a. The scenery
How could you enjoy yourself in such a place? Almost any section of the country, however, is beautiful. The houses and the fields are kept in good condition, the winding roads are finely paved, the hedges that border them are well trimmed, ivy and other vines

potatoes. Truck gardens are very numerous, since there are so many large cities.

Twice as much space is given to grass as to all these products, partly because much of the land is too hilly and rocky to be cultivated, and partly because grass grows so well in that climate. Some of the finest country scenes are those of grazing cattle and sheep. Many of our best cattle and sheep are imported from Great Britain and its neighboring islands. Possibly you know the names of some of



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Fig. 204. — An English country home

Many of the houses in the country districts of England are set in large yards surrounded by stone or hedge fences and by many large trees.

the breeds. The cattle and sheep supply many useful products, such as milk, butter, meat, hides, and wool. Yet farming, when compared with other occupations, is much less important in the British Isles than in any other leading country, and far too little food is produced to feed the people.

Some travelers going from America to the British Isles

5. Some of the attractions of Ireland

leave the vessel at Queenstown, Ireland. From there they go to Cork (Fig. 205), then northeast to Dublin, the capital, and across the Irish Sea to Liverpool or Glasgow. Trace the route. The country is charming because the frequent rains keep all the vegetation espe-

cially green. Ireland is often called the Emerald Isle because of this rich color. Lakes are numerous there, also, the Killarney Lakes (Fig. 206) being perhaps the best known. Farming, rather than manufacturing, is the prominent industry. Many of the farm products are similar to those of England. One of the principal differences is in the great amount of flax grown in Ireland. Flax is the material from which linen is made, and Belfast in particular is noted for its linen mills. Both Dublin and

Belfast are so close to Great Britain that they can easily secure coal and iron. Many of their manufactures are similar



Photo by Elmendorf © Ewing Galloway

Fig. 205. — The River Lee at Cork

to those in Liverpool and Glasgow.

1. Why have we a special interest in the British Isles?

Review questions

2. Describe the voyage from

New York to Great Britain.

3. Name and locate three ports at which passengers often land. 4. What kind of clothing would one need on the islands? 5. Tell about some of the interesting sights in London. 6. In

Liverpool and Glasgow. 7. In Edinburgh and towns along the eastern coast. 8.

State some facts about mining in Great Britain. 9. What three

kinds of manufacturing are especially important in the interior cities? 10. Name and locate two cities noted for manufac-

ture of steel goods. 11. Two noted for woolen manufacture. 12. One noted for cotton manufacture. 13. Name the principal farm products. 14. What are some of

the attractions of Ireland?

1. Make a list of good books whose authors lived in the British Isles. 2. People from England

Suggestions for extra work

are called English; what are those from Ireland called? From Scotland? From Wales? 3. What waters separate Great Britain from the continent? What is the shortest distance across? It is said that Britain has escaped many wars by this separation from the continent. How can that be true? 4. Describe the launching of a ship.



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Fig. 206. — A portion of one of the Lakes of Killarney

These famous lakes lie in basins between low mountains in western Ireland. The whole region is one of great beauty. There are many ruins of castles, some of which were built before America was discovered. The moist climate favors the growth of plants and most of the mountains are covered with forest from base to summit.



Photo by Elmendorf © Ewing Galloway

Fig. 207. — A farm scene in western Ireland

What indications do you see that this country is well watered?



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Fig. 208. — An airplane view of a part of Paris

Note the irregular streets, and the trees along the famous boulevards. What is the stream that flows through the center of the picture?

2. France

More than two million of our men went to France as soldiers in 1917 and 1918. A few sailed directly to Havre (Fig. 201), the port of Paris at the mouth of the Seine River. There they took train for Paris, since the river is too shallow for large ocean vessels, or directly for the field of battle. Others landed at Cherbourg or Brest, or even as far south as Bordeaux, wherever there was room in the crowded harbors or wherever the course seemed safest from German submarines. Some went to England and then crossed over to Calais or Boulogne. Trace the route from New York, and locate these French ports.

Our soldiers
in France

1. How they
reached the
fighting line

New York and London are the only cities in the world that are larger than Paris, but Paris is very different from either. Its principal streets are broader, the most noted being the avenue called Champs Élysées (Fig. 209). The buildings are of a uniform height, contrasting strikingly with those in New York as shown in Fig. 67; and the Seine River, which runs through the city, is crossed by many beautiful bridges. The street life, also, is more interesting, partly because there is more of it. For example, many of the restaurants serve their customers out of doors in summer; the wide sidewalks in front are filled with tables and chairs.

2. What they
saw in and
about Paris

Two of the most noted churches are the Madeleine, modeled after a Greek temple, and Notre Dame. The mansion of the president of the republic, corresponding to our White House at Washington, may be seen there; and there are several former palaces that are now used as museums or picture galleries, in which some of the finest paintings and sculptures in the world are exhibited. One of these is called the Louvre. The most famous suburb is Versailles, where the Peace Commission sat that ended the World War (Fig. 210). Ask some of your soldier friends what they saw in Paris and what they thought of the city.

Our soldiers could not have been greatly surprised at the climate, for it is similar to

How French farming compares with our own

1. The climate and products

our own. On the western coast it is mild and damp like that of our own western coast, owing to the westerly winds from across the Atlantic. The farther inland one goes, the warmer it gets in summer and the colder in winter. In the section where most of our troops were quartered, both seasons are much like those in southern New York, though perhaps a little milder. Southeastern France, however, under the influence of the Mediterranean Sea, is semi-tropical, like southern California and Florida. The products, also, are similar to our own: cattle and sheep; wheat, corn, oats, rye, and vegetables; fruits such as we know, and an especially large quantity of grapes (Fig. 211). Along the Mediterranean coast in the section called the *Riviera*, oranges, lemons, olives, and figs are common.

There are two striking differences between France and the United States in

the farming. One concerns the size of the farms. Many of the French farms contain no more than two and one half acres; and nearly one fifth of the land is in farms of less than twenty-five acres. What is the usual size in your state? The other difference concerns the place where the farmers live. They do not have their houses on their land, but live in small villages and go out into the country only to work. What advantages and disadvantages do you see in such a plan? Would it be advisable to try to introduce it into our country?

2. Important differences



Photo by Elmendorf © Ewing Galloway

Fig. 209. — The Champs Élysées, Paris

The area of France is 212,700 square miles and its population is nearly 41,476,000. Compare these figures with the corresponding figures for Great Britain (p. 310). The proportion of France that is level enough for cultivation is larger than in England. Locate the prin-

cial plains and highlands (Fig. 201). More than one half of all French workers are farmers, while in the British Isles the farmers are less than one fourth of the population. Four out of five of the French farmers own the land they cultivate. How must these facts affect the amount of farm products that they raise?

Why the French are more independent than the British in their food supply

namely, the manufacture of cotton, woolen, and linen goods.

The making of silk goods is a fourth textile industry of importance, particularly in the Rhone Valley. The raw material for silk is obtained from cocoons spun by a caterpillar called the *silkworm*. Each of the cocoons is made of a tiny silk thread several hundred yards long, looking somewhat like the thread of a



Fig. 210. — The Hall of Mirrors in the palace at Versailles

© Publishers' Photo Service

It was in this beautiful room that the treaty of peace closing the World War was signed.

Northern France resembles northern England in its mining and manufacturing.

Mining and manufacturing compared with those industries in England

A large part of the coal and iron mined in France comes from its northern part; and the same three textile industries are prominent there that are prominent in the United Kingdom,

spider's web. The silk industry depends upon these worms, which require much care. Their principal food is the leaf of the *mulberry* tree, which is cultivated in large groves in the Rhone Valley; but the greater part of the raw silk is imported from other countries, especially Italy, Japan, and China. The leaves are plucked

from the trees and fed to the worms; and when the caterpillars reach the right stage they spin the cocoons. After these have been softened in hot water, the threads are unwound, and then wound upon spools. They are later made into silk thread, which is then woven into ribbons, cloth, and other silk goods. The center of

Saar Basin (Fig. 201), which will greatly increase her coal supply.

The cities in Great Britain that rank next in size to London are on the west coast, where they can best trade with America. One might expect, therefore, that the French cities ranking next to Paris

The two cities next to Paris in importance



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Fig. 211. — Vineyards in France

One of the great industries of France is wine making. The land in the grape-growing regions is so valuable that nearly every square foot is used. The vines are kept short. Pruned vines grow better grapes and the vineyards are thus more easily handled.

the industry is Lyon (Fig. 201), the leading silk-manufacturing city in Europe.

Before the World War, however, France was seriously hindered in manufacturing by lack of coal. She mined only a small fraction of the amount mined in England, and partly on that account her manufacturing was much less. But as a result of the war she has been granted the use of extensive coal mines in the



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Fig. 212. — Household spinning in Brittany

The northwestern part of France is called Brittany. There are many very old-fashioned homes in France. This one room serves as a living room, kitchen, and bedroom. Do you see the bed? The open fire is used for cooking and heating.

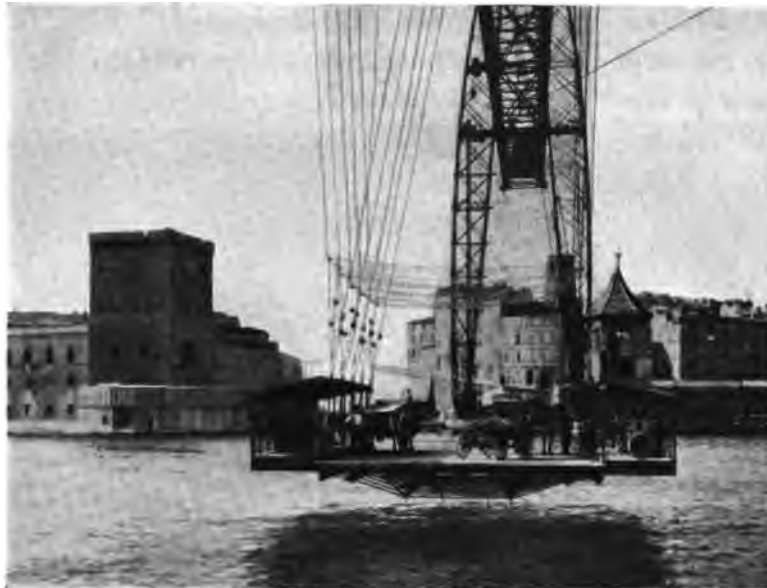
would be on the west coast. Yet they are not; they are Marseille (Fig. 213) and Lyon, one on the Mediterranean coast and the other in the Rhone Valley.

1. Advantages of their location

France imports much smaller quantities of food and raw materials for manufacture from the west than does Great Britain, and she exports smaller quantities of manufactured goods; consequently her

seaports on the Atlantic are much smaller. On the other hand, she has an extensive trade with the Mediterranean countries and the Orient by way of the Rhone Valley, which has always been the main route

it, in Africa, are Algeria, Tunis, and Morocco, important colonies of France, whose trade with the mother country naturally passes through this port. What route would goods bound for London from points on the Mediterranean coast be likely to take if they did not go up the Rhone Valley?



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Fig. 213. — Aerial ferry, Marseille

This ferry, hanging from overhead cables, carries passengers, carts, and automobiles from one side of the harbor channel to the other.

between those regions and northwestern Europe. In Fig. 201, trace the course that goods might take up the Rhone River to Paris. Note how the rivers of France are connected by canals. Can Paris be reached from Marseille by water? Lyon and Marseille owe their growth largely to this commerce.

Lyon is not only a center for silk; it has extensive metal manufactures as well.

It is not far from coal and iron mines, and makes more automobiles than any other French city.

Marseille is the leading seaport of France. Across the Mediterranean from

mining and manufacturing in France with these occupations in Great Britain. 8. Tell about the silk industry of France. 9. Why are the cities on the west coast of France less important than those on the west coast of Great Britain? 10. Show the advantage of the location of Lyon and Marseille. 11. State some facts about their industries and commerce.

1. How much of the boundary of France is natural? 2. About how far is Paris from the Belgian boundary? The Spanish boundary?

3. Find or mark off a plot of ground that contains only two or three acres. 4. Make a collection of photo-

Review questions

Suggestions for extra work

graphs taken in and about Paris. 5. Soften a cocoon in warm water and see if you can unwind the thread. 6. Show that when a hole is broken into a cocoon, its value for silk is destroyed. 7. Draw an outline of France and put in the prin-

cipal highlands, rivers, and cities. 8. How far is it from Paris to London? How far from Paris to Berlin? 9. Locate on Fig. 201 as many places as you can that were the scenes of battles in the World War.

3. Germany

The countries of Europe are so important that we often forget how small they are. Germany, for example, is now only a little larger than California.

How Germany compares with California in area, population, and size of cities

In population, however, there is a vast difference, for Germany has about sixteen times as many inhabitants, or a little more than 55,000,000. How much more is that than one half of the entire population of the United States? How crowded California would be if it contained so many people!

As might be expected, Germany contains many large cities. There are only three cities in California with a population of more than 100,000, and only two of them contain more than 500,000 each. In Germany, however, there are scores of such cities. The largest German city is Berlin, the capital, with nearly 2,000,000. Others are Hamburg, Cologne, Leipzig, Dresden, Breslau, and Munich. Locate these cities on Fig. 201. Show whether or not they are well distributed over the country.

How can so small a country support so many people? How can it feed them? This question is especially serious when one understands how unfavorable some of the

How so many people get enough to eat



Photo by Elmendorf © Ewing Galloway

Fig. 214. — The Brandenburg Gate in Berlin

This famous gate forms one of the entrances to the city. It was erected in 1789. The gate is 85 feet high.

conditions are for farming. The rainfall is sufficient in all parts, being heaviest in the west and decreasing toward the east until it is only about twenty-five inches. You can easily explain this decrease, since the rain-bearing winds come from the Atlantic. Yet there is enough



Photo by Elmendorf © Ewing Galloway

Fig. 215. — Natives of Bavaria

Bavaria is the name of one of the highland regions of Germany.

rain everywhere for the usual crops of the temperate zones. The temperature also is favorable; for the summers are nearly as hot as those in our Northeastern States.

But there are two difficulties. In Fig. 201 you can see that almost one half the area is mountainous or hilly. In the extreme south the mountains reach an altitude of more than 5,000 feet, but they decrease in height toward the north. A large part of this mountainous area is too rough for farming and is covered with forest.

The northern part is a great plain, level enough for farming; but much of it is too sandy for profitable cultivation. Partly for that reason there are extensive forests there also; and much of the land used for farms is cultivated at a disadvantage.

In spite of these drawbacks, Germany is a noted farming country. The people are careful to cultivate as much of the

land as possible, and they fertilize the soil far more extensively than we do. Their most important products are rye, oats, wheat, and barley, potatoes and other vegetables, sugar beets, and grapes. Rye holds the place there that wheat does in our country; and most of the people eat rye bread, often called *black bread*. Many prefer it to wheat bread. Germany leads the world in the production of sugar beets, and is noted for her vineyards.

Only about one third of the population, however, finds employment at farming and, as in the case of the English (p. 208), large



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Fig. 216. — Picking onion seed in Germany

amounts of food must be imported. We send the Germans dried fruits, wheat, corn, meat, and a large quantity of lard. They are able to pay for such imports by other goods that they produce.

Germany has ranked among the leading manufacturing countries of the world.

Why Germany has been able to develop manufacturing very extensively

1. Conditions favoring metal manufactures

One reason for this is that so few of the people could farm; the others had to do something else to make a living. But there were many conditions favorable to manufacturing. For example, coal is abundant; before the war, Great Britain was the only country of Europe that produced more coal than Germany; and no other European country mined so much iron ore. Recalling the great importance of coal and iron ore in the industries of our Northeastern States (p. 77), you can realize their importance for Germany. In Fig. 201 you see the names of several cities just north of Cologne and east of the Rhine River. How many can you count there close together? They are chiefly engaged in iron and steel manufacture, that section being one of the great centers in the world for this industry. With what two sections in the United States can you compare it (pp. 78 and 115)? With what part of Great Britain (p. 203)?

Germany closely resembles our Northeastern States in its manufacturing. You have seen how Pennsylvania and the surrounding states produce iron and steel and heavy articles made from them. You have seen, also, how New England, being farther away from the coal and iron supply, makes lighter articles of metal

(p. 78). Germany manufactures both the heavy and the light articles in large quantities; for example, engines, boilers, steel plates for ships, and hardware. Before the war she was widely noted for her excellent knives, scissors, needles, and microscopes. She has imported large



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Fig. 217. — Painting dolls' heads and arms in a German toy factory

In some portions of Germany great quantities of toys and Christmas goods are made. These women are painting dolls' heads and arms. In the basket are hundreds of arms. Many German toys are sold in the United States.

amounts of copper from us to be used in connection with metal manufactures.

Again, like New England, Germany has developed the textile industry extensively, including the manufacture of cotton, woolen, and silk goods. Nearly all of her

2. Other leading kinds of manufacturing



Fig. 218. — Bremen
What river is this? (See Fig. 201.)

raw cotton is obtained from us, and she exports lace and other textiles to us. In addition to all these things, she produces about three times as much beet sugar as we do and makes a great quantity of beer and wine.

Other conditions, also, have been favorable to Germany. For example, her central position puts her in closer touch with the leading nations of Europe than any other country. What nations border her (Fig. 201)?

At the same time she has a direct outlet to the sea, her two leading ports being Hamburg and Bremen (Fig. 218). Locate them. Note the number of ports on the Baltic Sea also. They are

more likely to be blocked by ice in winter than the others. Can you suggest why? Trace the route from these ports around Denmark to the North Sea. Locate the Kiel Canal across the southern part of this peninsula. Estimate the distance that it saves.

The rivers are another important aid to German commerce, since they are navigable for a good part of their length. In what direction do most of them flow? What are the names of the larger ones flowing

north? The Rhine (Fig. 219) is the most important, although neither its source nor



Photo by Elmendorf © Ewing Galloway

Fig. 219. — Scenery along the Rhine

Along the Rhine, chiefly on the hilltops but now and then close to the water, are the ruins of castles hundreds of years old.

its mouth is in Germany. In what countries are they? Why might the Germans regret that the mouth is not in German territory? What reasons can you see for the importance of the Rhine? Recall what was said about manufacturing along its course; also, note the number of cities upon it, and the location of its mouth.

The Danube River flows across southern Germany and eastward into the Black Sea. Trace its course in Fig. 197. It is connected by canal with the Main River, which flows into the Rhine. Thus boats can travel all the way from the North Sea to the Black Sea. What advantage for Germany do you see in this fact?

1. Compare Germany with California in area; in population; in number of large cities. 2. How are the conditions in Germany unfavorable to farming? 3. Name the principal farm products. What food does

Review questions

Germany buy of us? 4. What important minerals are found in Germany? 5. How does she resemble our Northeastern States in manufacturing? 6. What advantages for commerce are secured by the position of Germany? 7. By her rivers?

1. Germans on the average eat about one half as much sugar as we do. What explanation can you find for this fact? 2. Follow the course that goods might take from New York across Germany by water to the Black Sea. 3. Draw an outline map of Germany, showing the boundaries, the principal rivers and cities, and the countries bordering it. 4. Between what two routes must ships choose, in order to reach the ocean from Hamburg? Which is probably the more used? Why? In either case, how near to Great Britain must the ships approach? Do you see any reason why the Germans might regard it a disadvantage to have to pass so close to Great Britain?

Suggestions for extra work

4. Switzerland

Switzerland, in the center of Europe, is often called the playground of that continent and America because so many tourists go there to enjoy the scenery and climate. In the lofty Alps is some of the grandest scenery in the world.

The mountains, rising in the path of the west winds, cause a very heavy rainfall, much of which turns to snow and ice. The many snow-covered peaks, being so white and high, look like distant clouds. The great quantities of snow have formed glaciers, which move slowly down the valleys like rivers of ice. Below the snow

Why Switzerland is the favorite country in Europe for tourists

line the ice melts, and streams and lakes are numerous. The lower slopes are fertile, and in spring and summer the grass-covered valleys are brilliant with flowers.

The high altitude gives Switzerland a cool climate, and tourists enjoy especially the outdoor life. The dry, bracing air is also helpful, so that many go there to regain their health. One of the chief pleasures is mountain-climbing, which is sometimes dangerous as well as exciting. Many persons spend their winter vacations there in order to take part in such sports as skating, skiing (Fig. 222), and tobogganing.

Only the most sturdy people can climb the higher mountains, for it is a difficult and dangerous task. Mont Blanc, the highest peak in the Alps, is often chosen for this sport. What is its height (Fig. 201)? Though its summit is just across the

The ascent
of Mont
Blanc



Photo by Publishers' Photo Service

Fig. 220. — A bit of Swiss scenery

Beautiful waterfalls, cliffs with varied colored rocks, deep gorges, glaciers, and forests are the attractions of Switzerland to many tourists.

border in France, its lower slopes are in Switzerland and the climb is started in that country. Strangers wishing to climb it dare not go alone; they must employ guides, to show them the way and help them over the worst places.

The round trip usually takes two nights and three days; and as there is no place to obtain food, it is necessary to carry it.

Overcoats and blankets are also needed; for even though the journey be made in the hottest summer weather, it is bitterly cold upon the mountain top.

Suppose that we are making such a journey. We start early in the morning, so as to have a long day. Each of us carries a few light articles, but the guides and porters take most, for they are strong and used to climbing. At first we walk along a pleasant path in a beautiful wood; now and then a house is passed, and perhaps a green field, but soon there are no more houses or tilled fields, and we meet no people. The trees become smaller and smaller, until the line is reached above which it is so cold that no trees can grow. This is called the *tree line* or *timber line*.

From this point on, no plants larger than bushes are seen, and after a while even these disappear. Meanwhile the soil and grass have become more scarce, while here and there banks of snow are found in the shady hollows. Soon we have climbed to the *snow line*. This is the line above which snow is found all the year round. Now, no matter in what direction we look, rocks and snow are everywhere to be seen, and the snow is often twenty or more feet in depth (Fig. 221).

What a wonderful view is before us! It repays us for all the hard work. We look down upon the woods through which we have just passed, and over them to the deep valleys, with the green fields, pretty houses, and villages far below us. Beyond are seen other steep mountains on the opposite side of the valley.

A guide takes his place in front of us, and often tells us to stop while he goes

ahead to examine the way. It may be that the snow has bridged over and hidden a deep and narrow chasm, and if we were to step upon this snow bridge, we might break through and fall a hundred feet or more. Sometimes the guides lift us over a dangerous place; and when it is steep or slippery, they fasten all the members of the party together with ropes, so that if one starts to fall, the others may hold him.

As we advance higher and higher, it is often necessary to take a narrow path on the steep side of the mountain. On the right we can look hundreds of feet almost straight downward; on the left are huge stones and masses of snow almost directly overhead.

The snow sometimes slips, forming *snow slides*, or *avalanches*, which are very dangerous. They come tearing down the sides of the mountains with a terrible roar, at times burying whole villages beneath them. You have seen the same thing, on a much smaller scale, when snow has slid from the roofs of houses on warm winter days.

After one night spent in a little house about half way up the mountain side, and after much hard work on the next day, we reach the summit. Here, in spite of our heavy wraps, we are all

shivering, for it is freezing cold upon high mountain tops and there are often fierce winds which seem to go through even the thickest clothing.



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Fig. 221. — The ascent of Mont Blanc

The party of mountain-climbers is resting at a point known as the Grand Plateau, 13,000 feet above the 'sea. Beyond is seen the snowy summit. The climbers are equipped with ice-axes, packs, and snow-glasses.

On this barren mountain top there are no birds, no trees, no grass—nothing but snow and rock. But if it is a clear day and there are no clouds clinging to the



Fig. 222. — A skiing party mountain-climbing in Switzerland

© Ewing Galloway

mountain sides below us, we may be able to look down into the beautiful green valleys only a few miles away. There the birds are singing, flowers are blooming, and men working in the fields are complaining of the heat.

Before the World War more than 3,000,000 persons visited Switzerland each year. Probably on the average each spent not less than \$50 on hotel bills, railroad fares, and amusements while in the country. You can estimate, therefore, the amount of money their visits brought to Switzerland.

It is known that considerably over one third of this sum was spent on hotel bills alone. No wonder that the accommodation of tourists ranks as a great industry there! There are over 9,000 Swiss hotels, many of them in the mountains where the scenery is the grandest. The number of people employed in hotels is second only to the number employed in the largest Swiss industry, the manufacture

of machinery and instruments.

Among the many beautiful Swiss towns Lucerne, on the lake of ^{Attractions of} the same name ^{Lucerne} (Fig. 224), is one of those most often visited. Locate it on Fig. 201. Near by are two famous mountains, Rigi and Pilatus. From their summits one obtains magnificent views of the lake, over 4,000 feet below, bordered by green meadows and numerous villages. In several directions, as far as

the eye can reach, are the snow-covered crests of lofty mountains shining in the sunlight or lost in the clouds.



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Fig. 223. — A Swiss hamlet

Directly back of this little village you see a glacier.

Another beautiful city is Geneva, on a large lake of that name in the midst of the Alps. It is especially noted for its fine watches.

Chief industries in the cities

In northern Switzerland is Zurich, the largest city, on Lake Zurich, and Basel, at the point where the Rhine enters Germany. All three of these cities have good water or railroad connections, and are manufacturing centers, producing textiles, jewelry, scientific instruments, and dairy products. Perhaps you have seen a Swiss watch or carved cuckoo clock. The next time you buy milk chocolate see if it bears a Swiss brand.

The best farmlands of Switzerland are on the plateau lying between the Jura Mountains on the north

Leading kinds of farming

and the Alps on the south. In the valleys of that region cereals, vegetables, and fruits are raised. The mountain slopes afford excellent pasturage, and dairying is far more important than other kinds of farming. In the early spring the cattle, sheep, and goats are driven up the slopes of the valleys as the snow and ice melt and new grazing lands are exposed. Such a pasture is called an *alp*, and from it the chief mountains have received their name. The herders remain far up in the mountains all summer, living in log huts, watching the flocks and making cheese from the milk. In the fall the herds are driven back to the valleys to be stall-fed during the winter. What pleasures and

hardships do you see in the life of a herder in this mountainous country?

1. Why is Switzerland the favorite country of Europe for tourists?

Review questions

2. Show the importance of the tourist industry there. 3. Give an ac-



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Fig. 224. — Lake Lucerne

count of the ascent of Mont Blanc. 4. How is the region about Lucerne especially attractive? 5. Name the principal cities and their leading industries. 6. What are the leading kinds of farming?

1. What effect did the World War have upon the tourist trade of Switzerland?

Why? 2. Compare Switzerland with your own state in area and population. 3. Read

Suggestions for extra work

the story of William Tell. 4. The Swiss people living next to France speak French; those next to Germany speak German; and those next to Italy, Italian. What disadvantages do you see in having three languages? 5. What large rivers rise in Switzerland? Trace their courses.

5. Belgium and The Netherlands

These two countries have far more importance than their size suggests. They are the principal gateway to and from the interior of Europe. East and southeast of them are many nations that want goods from England and across the Atlantic, and that send goods to both of those regions.

Importance of the location of these countries



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Fig. 225. — A view of Rotterdam

The Rhine River is a natural highway for the transportation of such goods; its connection with the Danube, as we have seen (p. 219), provides a water route all the way to the Black Sea. There is no such easy route across France toward the east; and the route by way of Bremen or Hamburg is less direct. Estimate the distance from the coast of Belgium to Hamburg. In addition, the coasts of The Netherlands and Belgium have many excellent harbors.

The above facts explain why these small countries have three great ports: Amsterdam and Rotterdam in The

Netherlands, and Antwerp in Belgium. Which one of these three cities is on the Rhine River? By means of canals, boats from the other two cities can easily reach the Rhine. About how far are these ports from London? Locate the two other large cities; also The Hague and Brussels, the capitals of these two countries. The area of Pennsylvania is less than the

average area of our forty-eight states. The Netherlands and Belgium are each only about one quarter as large as Pennsylvania. On the other hand, the population of each is nearly equal to that of Pennsylvania. This shows that the people are very much crowded, even more so than those of Germany.

These two countries form a striking contrast to Pennsylvania in their surface features.

How they compare with Pennsylvania in appearance and products

1. The contrast in appearance

What do you remember about the mountains in Pennsylvania (Fig. 66) and the difficulty early settlers had in crossing them (p. 73)? The surface of these two countries is remarkably level, only the southeastern part of Belgium having any elevated land. The highest point even there is only about 1,100 feet above sea level.

Moreover, a portion of the land of The Netherlands is even lower than the level of the sea. On that account this country is often called Holland, or *hollow land*. What is the meaning of Nether-lands?

Fig. 201 shows how large a part is below sea level.

Many of the farm products of The Netherlands are the same as those of Pennsylvania. The principal crops are wheat, oats, and rye, vegetables and sugar beets, flowers raised for seed, and grass. Dairying is a very prominent industry. The people, called the Dutch, send away great quantities of butter, and Dutch cheese is famous throughout the world.

The appearance of the farms, however, and many of the methods of work would seem very strange to us. In the region below sea level the land must be protected from



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Fig. 226. — A school in Holland

These boys are learning the silversmith's trade.

floods by high embankments. The lower Rhine is kept within its banks in the same way as the lower Mississippi River (p. 116); and as one approaches Rotterdam on shipboard, or travels by boat through the lowlands, one sees the house-tops on a level with these embankments, and looks downward into the surrounding fields. The storks that may be seen resting on the roofs are protected by law, because they eat crayfish and other burrowing animals that might cause leaks in the embankments, or *dikes*.

On such a trip one finds the houses spotlessly clean. The people usually leave their wooden shoes at the door, so that they may not soil the floor with mud. Even the gardens of fruit and flowers are in exact rows and without a weed. Rain on more than 200 days in every year, together with the seepage of water through the dikes, keeps the low ground wet, and the water must, therefore, be pumped out.



Photo by Elmendorf © Ewing Galloway

Fig. 227. — A knitting lesson in Holland



Photo by Elmendorf © Ewing Galloway

Fig. 228. — A home in Holland

The Dutch people are noted for their cleanliness. No matter how humble the home, it is kept neat and free from dirt. Notice the cleanliness of the street before these modest homes.

Windmills are commonly used for this purpose, and are found near most houses. Can you see how wooden shoes might be better than leather in such a country? Since about one half of all the farmland in The Netherlands is in grass, what animals would you expect to see in large numbers?

Belgium is the most densely populated country in Europe, and the people are, if possible, even more careful than the Dutch to make use of every square foot of ground.

Why Belgium might be called a small Pennsylvania

Many of the farms contain only two or three acres, and most of the work is done by hand. For example, spading largely takes the place of plowing. Many of the crops are the same as in The Netherlands, although there are more sugar beets and fewer cattle, because other crops prove more profitable than grass.

In mining and manufacturing Belgium reminds one of Pennsylvania. Like the latter, it mines an enormous amount of coal, and much iron ore besides. With these minerals it manufactures great quantities of iron and steel, and machinery of many kinds. Glass is also an important product, just as at Pittsburgh. Cotton and woolen mills are numerous, as in New England; and sugar is made from sugar beets.

1. Explain the importance of the location of The Netherlands and

Review questions

Belgium. 2. How do they compare in area and population with Pennsylvania? 3. Show their contrast with



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Fig. 229. — Retting flax on the Schelde River, Belgium

After flax is cut and stacked, it is soaked in clear water, so that the fiber from which linen is made may be separated easily. This soaking process is called *retting*.

Pennsylvania in appearance. 4. How does The Netherlands differ from Pennsylvania in industries? 5. Why might Belgium be called a small Pennsylvania? 6. Describe a home in The Netherlands. 7. Compare a Dutch farm and its cultivation with a farm and its cultivation in your community.

1. Find the average size of our forty-eight states and compare with the average size of these countries. 2. Show that there is no transportation route by water across France equal to that from Rotterdam across Germany. 3. Read the story about the little Dutch boy who saved many lives by holding his hand in the

leak in a dike until help came. 4. There is much shipbuilding at Antwerp. What conditions have favored its development? 5. Secure a picture of a Dutch windmill. Why are they so common in Holland? 6. Why is the wooden shoe more practical in Holland than it would be in our country? 7. Why does Holland depend so largely upon rivers and canals as means of transportation? 8. If you were painting a picture of a Dutch scene, tell at least two things you would put in it. 9. What are the principal farm crops of The Netherlands? 10. Locate Amsterdam; Rotterdam; Antwerp; The Hague; Brussels.

Suggestions
for extra
work

6. The Scandinavian Countries

(Norway, Sweden, and Denmark)

These three countries are closely related in language and customs, and Norway and Sweden were for a long time united in one nation. These are known as the Norse nations, or the countries of the Norsemen or Northmen. The many Norse myths came from this region. Do you know any of them?

Norway and Sweden are much larger than Denmark. The areas of densest population of all three countries are close together. Locate the three leading cities and capitals, Christiania, Stockholm, and Copenhagen. If a triangle were drawn connecting the three, which would be the shortest side? How many miles would it represent? What water would be included in the triangle? How much land?

The map shows that the coast of Norway is very irregular and mountainous. The sea enters the deep mountain val-

leys, forming long, narrow bays with steep walls. Such bays are called *fiords*. Some of the fiords are more than 100 miles long, and their walls 2,000 to 3,000 feet high. They offer some of the grandest scenery anywhere in Europe.

The attractions of the western coast of Norway to tourists

Many Americans visit this region in summer. Even though it is so far north, the warm winds from the Atlantic make the voyage delightful in that season. Besides the steep cliffs and deep, quiet waters of the fiords, many glaciers are to be seen. The tourist steamers cross the Arctic circle and go as far as North Cape. There in midsummer one can see the sun at midnight. This part of Norway is called the *Land of the Midnight Sun*, because for a few weeks in summer the sun is in sight during the full twenty-four hours of every day.



Photo by Elmendorf © Ewing Galloway

Fig. 230. — A view of Skarsfos, Norway

The streams in this picture are pouring down into one of the deep fiords along the coast of Norway.



Photo by Elmendorf © Ewing Galloway

Fig. 231. — A view of Grand Rocks, North Cape

From this point on the northern coast of Norway the midnight sun may be seen in June and July.

The peoples of Norway and Sweden are famous sailors. Their ancestors, the Vikings, sailed along the coast of North America 500 years before Columbus landed here. What stories or poems have you read about the Vikings? Many of the most noted and successful modern explorers of the polar regions are Scandinavians. Can you name any of them? Scandinavian sailors are found in nearly every port of the world.

If you inquired why so many become sailors, you would probably be told that it is because of lack of employment at home. A large part of the country cannot be inhabited. The northern parts of Norway

and Sweden are too cold in winter, and much of the interior is too mountainous,



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Fig. 232. — Milking goats at a home on Hardanger Fiord, Norway

In many portions of Europe where pasturage is too poor for cattle, goats are raised for dairy purposes. Some of the famous cheeses of Europe are made from goats' milk.

to support many people. Therefore, they make their homes chiefly in the southern part of the peninsula and near the coast. Less than one fifteenth of the surface of Norway can be cultivated, and in both countries only the hardy grains and vegetables can be grown. Sheep and cattle are raised in large numbers. The forests are extensive, so that lumbering is important. Examine some boxes of safety matches, to see if they have not come from Norway or Sweden. Yet lumbering is an industry that requires few workmen.



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Fig. 233. — Gothenburg harbor, Sweden

There is some excellent iron ore; but the lack of coal prevents the employment of a large number of people in manufacturing.

Denmark has little forest, and is the poorest country in Europe for minerals. Moreover, while it is not mountainous, the soil is sandy and not very fertile. Careful methods, similar to those used in Belgium, are necessary to make the ground productive. Dairying and the manufacture of dairy products form the principal occupations.

On the other hand, the sea calls for a large number of men. Since the land produces so little, much of the food consists of fish; and both the North Sea and the coast of Norway are excellent fishing grounds. The export of lumber and iron ore and the import of coal call for much transportation by water. Since they live along the coast and travel from town to town oftener by water than by land, the people have become very familiar with the sea. Their abundance of lumber has made it possible for them to



Photo from Ewing Galloway, N. Y.

Fig. 234. — Helsingfors, the capital of Finland
What is the building on the left? Read the sign.

3. Attractions
of the sea

manufacture wooden vessels very cheaply. For all these reasons, they have engaged extensively in fishing and in ocean trans-



Fig. 235. — On the coast of Spitzbergen

Norwegian vessels run even to this little settlement on the bleak coast of Spitzbergen (Fig. 46).

portation both for themselves and for others, particularly the Norwegians. Norway has a larger number of ships in proportion to its population than any other country in the world.

1. Describe the attractions to tourists of the western coast of Norway. 2. What is the *midnight sun*? 3. Why do many Scandinavians become sailors? 4. What common article do we use that comes from Norway and Sweden? 5. What is the chief industry of Denmark?

Review
questions

1. Do you see any reason for thinking that the Kiel Canal may have injured Copenhagen? 2. What proportion of the land in your state can be cultivated? How does this compare with Norway and Sweden? 3. Compare Den-

Suggestions
for extra
work

mark and The Netherlands in area, population, surface, and products. 4. The Danes used to charge toll for all vessels entering and leaving the Baltic Sea. What reasons can you see for such a practice?

III. EASTERN EUROPE

Russia, Finland, Poland, and Neighboring Countries

The government of Russia has been more nearly an absolute monarchy than any other in Europe. The meaning of the word *absolute* is suggested by some incidents in the life of Peter the Great, the ruler, or *Czar*, of Russia 200 years ago. In 1703 he began to build an entirely new city on the Gulf of Finland, which was to be the new capital in place of Moscow, and is now known as Petrograd (p. 234). Estimate its distance from Moscow (Fig. 201).

Weaknesses of Russia

1. Character of the government

In the progress of the work he could not obtain enough masons to put up buildings; so he forbade all other construction of stone buildings throughout Russia. When the city lacked desirable inhabitants he required every man in Russia who employed as many as five hundred serfs, or workmen, to build a residence in Petrograd and to spend the winter there. In other words, his will was law, and his government an absolute monarchy. The other Czars of Russia ruled in the same way.

The last Czar, Nicholas II, however, was driven from the throne in 1917. After some attempts had been made to form a republic, a small group of lawless men obtained power and undertook to govern the country. Everywhere there has been disorder and suffering.

Another striking weakness is lack of education. Four out of every five persons

2. Lack of education

can neither read nor write. On that account the store signs in many places consist of pictures rather than words (Fig. 236). For instance, a picture of a hat over a door means a hat store; a picture of a shoe, a shoe store; and a picture of a sausage, a butcher shop. Americans in Russia have found that many of the cab-drivers could not find the houses whose addresses were given to them, because they could not even read house numbers. People who are so ignorant as that are not usually intelligent enough to handle machinery, or to do any kind of work well; and they are easily misled by bad men. Any nation is checked in its progress in every direction by such ignorance, and lives and property are not safe.

Yet Russia has been regarded as one of the important countries of the world. This is partly because of its great size and population. A considerable part of Asia belongs to Russia; but Russia in Europe before the World War occupied more than half of all Europe, and the whole empire included about one seventh of the

land surface of the globe. Trace the boundaries of Russia in Europe today (Fig. 198).

The population of European Russia before the war was about 140,000,000; and that of the whole empire about 175,000,000. How does that compare with the population of the United States?

Its great resources are another reason for regarding it as an important country. More than one third of Russia in Europe is covered with forest. The land is remarkably level; much of the soil is uncommonly fertile; and the climate in most sections is favorable to farming. It has vast quantities of coal and iron ore and ranks next to the United States in the production of oil. With all these resources, it is bound to be one of the very greatest of nations as soon as its government and education are properly improved.

Four out of every five men are engaged in farming; no other occupation approaches it in importance. Most of the people, therefore, live in the country, and there

The principal occupation in Russia



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Fig. 236. — A butter, cheese, and egg shop in Russia
Note the picture sign painted on the window.

are few large cities. Although Russia's population is much greater than ours, we have at least twice as many cities with 100,000 inhabitants.

1. Prominence of farming and interesting facts about it

The people do not live on their farmland, however. Just as in France (p. 211), they live in villages con-

are more acres in wheat, oats, rye, and barley than in the United States; and in some years more wheat has been raised there than here. Russia raises great quantities of potatoes, hay, flax, and hemp. In the extreme southern part the climate is so mild that cotton and tobacco are produced. The greatest difference in the crops of the two countries is in the corn; we raise far more of that grain than Russia does, chiefly because Russia has not enough rain.

Moscow is distinguished in two ways. It is the greatest manufacturing center in Russia. That country before the war did not manufacture on any such scale as we do. Yet there was a considerable amount of it in some places; and in Moscow one found many textile mills, and factories for the manufacture of chemicals, leather goods, machinery,



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Fig. 237. — Russian peasants

taining from 200 to 500 persons and go out to the land each day to work. Can you imagine how such a level country would look with thousands of these villages scattered over it? Make a drawing to show how you think the country would appear to a man in an airplane.

Northern Russia is too cold for farming, and the southeastern section is so dry that it is fit only for grazing.

2. How the farm products compare with our own

The land about the Caspian Sea is a real desert. Locate the desert region in Fig. 191.

The rest of the country produces crops similar to those of our country. There

and other articles. The thing for which Moscow is most distinguished, however, is the part of the city called the

Why Moscow is the most interesting city in Russia

Kremlin. Here the Czars were formerly christened, married, crowned, and buried. Here, also, they lived and worshiped; and as Moscow was the headquarters of the Russian Church, the oldest and finest cathedrals and monasteries, as well as palaces, were erected in that quarter. There are 500 churches in the city; but on account of the Kremlin in particular Moscow is known as the holy city of Russia. The Russians call it Holy Mother

Moscow. In Fig. 198 notice the importance of Moscow as a railroad center.

The two leading seaports of eastern Europe are Petrograd and Odessa. Locate each.

How far apart are they? Russia is so level that it has been easy to connect them with the principal rivers by canals; and one can go from one of these ports to the other by several water routes.

There are some disadvantages, however, that such transportation suffers. Most of the rivers of Russia rise near the center of the country in the Valdai Hills, which are the highest land in the interior of Russia. Locate these hills and name several rivers that begin in that region.



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Fig. 238. — The famous "King Bell" in Moscow. This bell, which was made in 1737, weighs 200 tons.



© American Red Cross

Fig. 239. — Cathedral of St. Basilica, Moscow. Note the peculiar shape of the Russian church steeples.

The highest point there is only 1,150 feet above the sea, which allows a fall of only a few inches per mile for the rivers. On that account they flow very slowly and wind about so much that the distance between points upon them by water is often twice as great as by land. Since lumber is one of the chief exports, there are many timber rafts on the rivers, and it takes so long for these to reach their destination that families often build shacks for homes and even raise gardens upon them. Mention some of the pleasures you see in such a life. Aside from the many windings of the rivers, the Volga, which is the largest of all, indeed the largest river in Europe, loses much of its value because it ends in a desert region. Locate its mouth (Fig. 197).

The building of railroads in such a flat country is easy, and the map shows that

there are many. Yet their number is small compared with the number in the United States. Russia in Europe has 36,000 miles of railway, while we have 266,000. Can you account for the difference?

Both Petrograd and Odessa are a long way from the ocean. Trace the route that vessels must take to reach the Atlantic from Petrograd; from Odessa. Which is the shorter? Which port has the advantage in the winter? In case of

2. Their disadvantages for foreign commerce



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Fig. 240. — Wheat ready for shipment, Odessa

Notice the wooden yokes that are placed upon beasts of burden in Russia.

war how many countries might block the way from Petrograd to the ocean? From Odessa? In spite of the great area and population of Russia, its entire foreign commerce before the war was only about two thirds as great as that of New York City alone. What reasons can you give for so small an amount?

Odessa is often compared with Minneapolis, because it is a great center for wheat.

How does it compare in population? It has many flour mills, and is the chief port for shipment of wheat abroad. It is a modern city with many fine streets and parks and is built around a beautiful bay.

3. Interesting facts about these ports

Petrograd is much more important than Odessa as a manufacturing center, ranking next to Moscow in that respect. Compare it with Chicago in population (pp. 310 and 311). It is located in a marsh at the point where the Neva River empties into the Gulf of Finland. Its climate is severe. Up to the time when Peter the Great founded Petrograd, Russia had been more related to Asia than to Europe. Peter changed the capital in order, as he said, that he might have a window looking out upon Europe. Why, do you suppose, was that desirable? Do you think this location a wise one?

The city was until recently the center of education and government. It is a city of beautiful streets and imposing buildings. The marsh has been drained into canals, which form some of the streets; and many bridges cross the canals and connect the islands. Can you imagine some of the winter sports there?

As a result of the World War, Russia has lost very important territory. Finland (Fig. 198) has become independent; it is now a republic, having an area about equal to that of the British

Russian losses of territory

1. Finland

Isles and a population of more than three million. Its capital, Helsingfors, is right at the front entrance to Petrograd. Can you see any reason why the Russians might object to having the capital of a foreign country at this point? Finland is chiefly a farming country. It contains

many lakes (Fig. 197), with patches of farmland scattered among woods and marshes.

Poland, on the west side of Russia next to Germany (Fig. 198), has

2. Poland

also become an independent republic. It has a population of about 30,000,000 and an area of more than 140,000 square miles. Some of this territory has been won back from Germany and Austria, by whom it was seized many years ago; but the greater part, including Warsaw, the capital, and Lodz, was restored to it from Russia. Locate these cities. They are great manufacturing cities, noted especially for textiles and iron goods. The number of important cities, however, is



© American Red Cross

Fig. 241. — A Polish peasant's home near Warsaw

How does this home appear to compare in comfort and attractiveness with the dwellings occupied by the poor in our own country?

not great, for Poland has surface features similar to northern Germany and is chiefly a farming country. Recalling what has been said about manufacturing in Russia, what do you suppose must be the feeling of the Russians about this loss?

Esthonia and Latvia (Fig. 201) are now recognized as independent nations. Lithuania and Ukraine have likewise declared their independence. If they also remain separate, Russia will lose much of her former prominence among the nations of the earth.

3. Other new countries



Photo from Ewing Galloway

Fig. 242. — Interior of a Finnish peasant's home

Finland is as far north as Alaska, and the warmly built but roughly furnished cabins of the Finnish peasants resemble the cabins of the Alaskan miners.

1. State the character of the Russian government. 2. Tell about the lack of education. 3. Why has Russia been

Review questions

regarded as one of the great nations? 4. State some facts about Russian farming. 5. Compare Russian farm products with our own. 6. Why is Moscow an especially interesting city? 7. Name and locate the two leading seaports of Russia. 8. What advantages have they for commerce within Russia? 9. What disadvantages do they suffer in foreign commerce?

offered a better location for the new capital of Peter the Great than that of the Baltic Sea. 2. There are two other prominent routes from Russia to the ocean. Can you find them? 3. Russia consumes one fifth of a ton of coal per person each year, while the United States consumes five tons per person. What other differences be-

**Suggestions
for extra
work**



Photo from Ewing Ga'louay

Fig. 243. — City of Riga, capital and chief seaport of Latvia

10. Recall some facts about each of these seaports. 11. What losses of territory has Russia recently suffered? 12. What can you tell about the surface features of Finland? About those of Poland? 13. Tell what you can about the occupations of the Polish people. 14. What other countries have secured or hope to secure their independence from Russia?

1. Here is a question for debate: *Resolved*, That the coast of the Black Sea, if it could have been secured, would have

tween the two countries do these facts suggest to you? 4. What countries and bodies of water bound Russia? 5. Make a drawing of Russia, putting in the principal highlands, rivers, and cities. 6. Many Finnish people have settled in northern Michigan. Can you suggest why they have preferred to settle there instead of farther south? 7. Find out how Poland came to be divided among three of her neighbors. How does her present size compare with her former size?

IV. COUNTRIES OF THE WESTERN MEDITERRANEAN

1. Spain and Portugal

Spain and Portugal (Fig. 247) are located so much farther south than other well-known countries of Europe that one would expect them to have a mild, pleasant climate. With ports on both the Atlantic Ocean and the Mediterranean Sea, one might expect them to do a great deal of trading with other countries. As Spain and Portugal lie between Africa and central Europe, their railroads should offer one of the best means of transporting goods between the two continents. Likewise, since these countries are nearer the United States than any of the other countries of Europe, goods might be expected to enter and leave Europe through Spanish or Portuguese ports. Point out on Fig. 315 these advantages of location.

Yet the climate of most of the peninsula is not mild. Nearly three quarters of

the area is a mountainous plateau over half a mile above the level of the sea. Only a narrow strip around the edge and a few river valleys are low and have a mild climate. Point out some of these warmer sections on the map. How does the surface remind you of that of Mexico (Fig. 58)?

On account of this lofty plateau, it is difficult to get goods from the interior to

the coast for shipment abroad. For the same reason, incoming goods are not easily distributed to the central region. Most of the rivers flowing from the plateau to the sea have many rapids and falls, so that they are of little use for navigation. The most valuable is the Guadalquivir River. Trace its course. You can see that the mountainous plateau makes it difficult to build railroads across the peninsula. The lack of good harbors interferes still further with transportation. Lisbon has one of the finest harbors in the world, and Oporto a fair harbor. Two good harbors in Spain are Cadiz and Barcelona; but there are few others. Locate these four.

For these reasons goods cannot easily be shipped across the peninsula. It has not become, therefore, an important route between Europe and Africa, or between Europe and America.



Fig. 244. — A public square in Lisbon

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Photo by Elmendorf © Ewing Galloway

Fig. 245. — The cliffs and viaduct at Ronda

Ronda is a short distance from Malaga and Gibraltar (Fig. 247).

The foreign trade of Spain and Portugal together is in most years much less than one fifth that of France; and their rank is very low in comparison with other nations.

The average Spaniard dislikes business. The rich landowners have been content to allow ignorant overseers to look after their estates while they themselves spent their time in the cities. Madrid owes its size partly to this cause, since there is little manufacturing there.

The narrow strip of land lying between the plateau and the Mediterranean is very productive. In some years three or four crops are raised. On account of the lack of sufficient rain there, however, irrigation is necessary.

Near Valencia, where the gardens are famous, some of the irrigation works date from the time of the Moors, who were driven out of Spain several centuries ago. Malaga is noted for its grapes. Have you ever eaten any of them? Dates, oranges, lemons, grapes, and raisins are raised for export, and rice, sugar cane, onions, beans, and peas for home use. The fertile Guadalquivir Valley is well known for its wines and olives.

On the plateau, however, the farming is poor. Although over half of the people are engaged in agriculture, they export little food. One reason for this is that they get most of their rain in the winter after the growing season. Another reason is the old-fashioned way in which they farm. For instance, they still use wooden plows and thresh their grain by having horses tramp it out. Wheat, rye, flax, and grapes for wine are the principal crops there, and some sheep and cattle are raised.

Spain and Portugal are rich in minerals. Coal, lead, iron, zinc, tin, copper, and quicksilver are abundant, and there are deposits of silver. All the mountainous sections have one or more of these minerals. Yet the people have shown so little energy that they have allowed foreigners to work the mines and export the products. These minerals should be a great source of wealth in the future.

If you were to visit Spain and Portugal you would hardly find traveling as comfortable as it is in the United States. There are not many fast trains and the cars are not well heated in winter. When the trains are crowded no more passengers are allowed to get on. You

3. The little use they make of their minerals

Discomforts and pleasures of a visit to these countries

What the people do

1. Their love of city life

2. Poor success in agriculture

may wait hours for your train and then find that you cannot board it. The hotels are even more uncomfortable than the trains. A bathroom with running water is rare, and even hot water is hard to obtain.

Madrid is the railroad center of Spain (Fig. 247). If you visited Madrid in the spring you might suffer from the cold. One of their proverbs says: "Don't take off your overcoat till the fortieth day of May." What does that mean to you? But if you arrived in summer you would be sure to suffer from the heat.

As you traveled about the country you would be surprised at the large number of beautiful churches and buildings. The art gallery at Madrid is one of the finest in the world. Some of the most interesting buildings in Spain were erected by the Moors. The famous palace at Granada, called the Alhambra, is one most often visited by tourists (Fig. 249).

One of the best known places to visit in Spain is Gibraltar. Many Americans go to Europe by way of the Strait of Gibraltar (Fig. 315). Gibraltar is now owned by the British, who have made a powerful fortress of it. Why should Great Britain want a stronghold at this point?

1. What advantages does the location of these countries suggest? 2. Give some reason why their rank is low. 3. How do the peo-

ple show their love of city life? 4. Name their principal agricultural products. 5. For what is Valencia famous? Malaga? 6. Why is their farming so poor? 7. What minerals are found in abundance in Spain? 8. What use do they make of their minerals? 9. Tell of the discomforts and pleasures of a visit to these countries. 10. What is the Alhambra? What is Gibraltar?

1. Compare the location of Madrid with that of Mexico City. Which has the better climate? 2. Why would you expect considerable water power in these countries?

**Suggestions
for extra
work**

3. Who were the Moors? When did they live in Spain? From where did they come? What works of the Moors can still be seen? 4. In what ways is it an advantage, and in what ways a disadvantage, that the Pyrenees Mountains so fully separate Spain and France? Note whether there



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Fig. 248. — Carrying hay on pack mules near Seville

Can farmers accomplish a great deal by such methods? What public improvement would make better methods possible?



Fig. 247



Fig. 248

are any railroads connecting the two countries. 5. Compare Spain and France in area and population. Which seems to have the advantage in location? Why?



Photo by Elmendorf © Ewing Galloway

Fig. 249. — Entrance to the Alhambra

6. How do the two capitals, Madrid and Lisbon, compare with each other and with the other cities in population (p. 312)? 7. What reasons do you see for so large a city in central Spain?

2. Italy

Italy is an especially interesting country to tourists. Before the war great numbers of Americans visited it each year, and many more came from other countries. Some travelers were attracted to Italy by the mild climate and beautiful scenery.

Italy as
a tourist
country

To others, since Rome was once the leader of the world, the many ancient buildings are the chief attraction. Still others go to Italy to see its paintings and statues, which make Italy the art center of the world. Which of these attractions would most appeal to you?

If you ever visit Italy, you are likely to sail from New York to Naples. In Fig. 315 follow the route from New York through the Azores and the Strait of Gibraltar to Naples. How direct is this route? What does it tell you about the latitude of these two cities? You may wonder at the climate in Naples. Whatever the season, the weather is likely to be warmer than it is in New York.

The voyage to
Naples and
the attractions
of that city

1. The beauty
of the climate
and location



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Fig. 250. — Macaroni drying in the open streets of Naples

The macaroni is often made in dark, unsanitary rooms and then brought out to be dried in the sun. The streets are often dirty. How would you like to eat macaroni that has been made in such places?

The curved bay on which Naples is located presents a most magnificent sight as the boat steams into the harbor. Its sparkling blue water is crowded with shipping. On the north shore the city rises street above street upon the slopes of high hills. To the east is the volcano, Mount Vesuvius (Fig. 251), with the crests of the Apennines in the distance.

As you take some of the delightful excursions about

2. Interesting sights about Naples

Naples you find a productive farming region; the

farms, however, are very different from ours. Instead of living on their land, the peasants crowd into Naples and go out to their work each day. It is partly because of this desire for town life that Naples has become the largest city in Italy. Every possible foot of land is cultivated to supply food for the dense population, for over half the country is too mountainous for farming, or is covered with marshes that are too unhealthful for human beings. Notice how the Apennines extend the whole length of Italy (Fig. 247), forming its backbone. Many of the fields are small and irregular. It is a common sight to see hillsides terraced in narrow strips of wheat, vineyards, and groves of olive, orange, and lemon trees; and even a corner by the roadside may be a vegetable garden.

Strange as it may at first seem, the great fertility of this region is due largely

to Mount Vesuvius, for the decay of the lava and ashes thrown out by that volcano has enriched the soil. You may be interested in climbing Vesuvius and peering cautiously down into the smoking crater. The city of Pompeii, which was



Photo by Elmendorf © Ewing Galloway

Fig. 251. — Mount Vesuvius

Locate this famous volcano on Fig. 247. What is its height? Notice the smoke rising from the hollow top, or crater.

completely buried in a terrible eruption nearly 2,000 years ago, has been uncovered and may also be visited. One may wander about its silent streets and ruined homes, and in the museum see loaves of bread and other articles which were turned to stone centuries ago.

Locate Rome, the capital and most important city of the peninsula. It is a city of fine residences, public buildings, art galleries, and notable ruins. The dome of St. Peter's, the largest and most famous church in the world, towers above everything else; and the Vatican,

Why Rome and Florence are interesting cities

where the Pope resides, is the most noted palace in the world. In the Vatican are many famous paintings.

sand and rubbish. Can you imagine some of the ways in which winds and wars would help to do this? Only in recent

years has the rubbish been dug away from many of these ruins, so that you can now see parts of them as they stood in Julius Caesar's time. One of the most noted relics is the Colosseum, a huge, oval-shaped theatre open to the sky. There fights to the death were held between men, and between men and wild beasts, for the amusement of the Romans. Another extensive ruin is the Forum (Fig. 252), a great public square, where monuments, arches, and temples stood.

Florence is a picturesque town lying in the upper valley of the Arno, amid hillsides thickly dotted with olive trees. The ancient palaces, the Duomo, or cathedral, and the more modern buildings cluster about the banks of the river, which is spanned by many quaint bridges. Florence is noted as a storehouse for art, and its



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Fig. 252. — Ruins of the Forum at Rome

In ancient times this open square was used as a common meeting place where the Romans transacted their business and held their elections. Around it are seen the ruins of many of their chief public buildings.

Modern Rome is built partly over the ruins of ancient Rome, which was the center of the mighty Roman Empire. During the centuries which have passed since the fall of that empire, most of its ruined buildings have been gradually buried by

1. Famous buildings to be seen in Rome

galleries are among the best in the world. Even the Florentine manufactures are especially beautiful. You will see hats and baskets of plaited straw, hand woven silks, and statues made of flawless Carrara marble from the quarries near by (Fig. 253).

2. Beautiful sights of Florence

You are likely to think Venice, at the head of the Adriatic Sea, the strangest city you have ever seen. The train which carries you there passes from the mainland over shallow lagoons to a city which seems to rise out of the sea, but which is securely built upon more than 100 small islands (Fig. 254). You will be met at the station by a boat called a *gondola* and rowed to the doorstep of your hotel; for canals form the streets of Venice and gondolas take the place of automobiles and street cars. There are many footpaths and bridges, however, so that one may walk throughout the city; but there are no wagon roads nor horses. You will enjoy riding down the Grand Canal (Fig. 254), which is bordered by palaces of white marble. You will see St. Mark's Cathedral, and in the great square in front of it you may stop to feed the pigeons. Near by is the palace of the Doges, where the rulers of Venice lived long ago.

There are many things to buy, for the Venetians are especially noted for their artistic manufactures. The Venetian glassware is famous. Very fine lace is made there, and pottery making is another industry.

Notice that the principal river of Italy is the Po. Trace its course. As you travel through the Po Basin you pass through the rich-

est farmlands of Italy. The temperature is similar to that about New York, but the rainfall is much less in summer. You will notice familiar crops, such as grapes, wheat, and corn, the richness of the region being due partly to the irrigation systems which thread the plain in all directions. On irrigated fields nine crops of fodder are sometimes harvested in a single season. The mulberry tree also grows several crops of leaves, making the production of raw silk the chief industry of the valley. How do the level land and numerous rivers make irrigation easy? Where the plain is marshy and difficult

Strange things
you may see
at Venice

1. A journey
from Venice to
Milan



Fig. 253. — Hauling Carrara marble slabs to a railway station for shipment

The Carrara marble district lies about fifty miles southeast of Genoa. Some of these quarries have been worked for more than 2,000 years. These slabs will be used to beautify buildings; their value lies in their pure white color and the absence of stains or cracks.

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to drain, you will see rice being cultivated.

Perhaps you have wondered why so little thus far has been said about manu-

dant water power. From what mountains do they get their water? Important trade routes likewise pass through Milan (Fig. 247), and coal is easily brought from Germany. Therefore, you will see many factories, especially for silk, woolen, and cotton goods. Food products are also prepared, and machinery and cutlery are manufactured.

Milan has not the number of noted buildings that many other Italian cities have; but its cathedral is particularly beautiful. On the walls of a former monastery is the great painting "The Last Supper." Have you seen a copy of it? If so, describe it.

The temperature changes greatly as you approach Genoa. You will see olive, orange, and lemon trees flourishing there, for the west winds from the sea moderate the temperature just as they do at Naples. The warm days and brilliant sky and sea make this portion of the coast one of the fa-



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Fig. 254. — The Grand Canal, Venice

Venice is built on about 120 islands near the mouth of the Po River. Canals, for the most part, take the place of streets. There are 175 canals, which are crossed by more than 375 bridges.

facturing. The reason is that Italy lacks practically all the minerals, including coal, which are necessary for manufacturing. In Milan and its vicinity, however, manufacturing is possible; for there the mountain streams afford abun-

2. How Milan differs from other Italian cities

vorite resorts of Europe.

Genoa is connected by rail with other Italian cities and with the largest cities of Europe, and its harbor is the finest in Italy (Fig. 255). Therefore, you might expect to see on the wharves the principal exports and imports. Among the largest

3. A visit to the most important seaport

exports will be silk, wine, and olive oil. What others might you expect? You will see raw cotton from the United States and coal from Great Britain being unloaded.

1. Show the importance of Italy as a tourist country. 2. State

Review some facts
questions about the voy-

age to Naples and about the beauty of the climate and location of that city. 3. What interesting sights are found around Naples? 4. What famous buildings and ruins are to be seen in Rome? 5. Mention some of the attractions of Florence. 6. Of Venice. 7. Describe the journey across the Po Basin. 8. How does Milan differ from other Italian cities? 9. Explain the importance of Genoa.

1. Describe the shape of Italy. Make a drawing of Italy, locating cities, mountains, rivers, and the islands Sicily and Sardinia. 2. Make a list of the leading cities.

Why can you expect the Po and its tributaries to be well supplied with water in summer, even though the rainfall is slight? 4. How must the Alps affect the temperature of Italy? 5. Write a composition

Suggestions
for extra
work



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Fig. 255. — A view of the harbor at Genoa.

For more than a thousand years this has been an important harbor. What great explorer was born here?

telling why you would like to live in Venice. 6. Collect pictures of ruins and famous buildings in Italy.

V. COUNTRIES OF THE DANUBE AND THE BALKANS

(Czecho-Slovakia, Austria, Hungary, Jugo-Slavia, Albania, Bulgaria, Rumania, Greece, Turkey)

The position of these countries is of special importance. For many centuries the principal part of the civilized world lay south and southeast of the Black Sea. Europe was then thinly settled by half-savage tribes, and was an inviting region for those inhabitants of Asia

Importance of
the position
of these
countries

who wanted adventure or more space. From time to time great masses of people, thousands and even hundreds of thousands together, pushed westward from Asia into Europe, and on finding some suitable place, settled down. There they remained until crowded aside by new and more powerful hordes from other

parts of Asia. Thus through the long centuries one wave of people after another entered Europe and established a home there.

No matter where they finally settled, most of them came by one route that

made them a bridge between Asia and the leading European nations.

Each new wave of people crowded aside those whom it found in its way; or, after much fighting, it mixed with them as masters, or slaves, or

Reasons for the many languages and irregular boundaries equals. In such ways peoples speaking different languages became established near together.

Naturally the different races have often been at war with one another, and government has been a difficult problem. One cause of trouble has been the desire of each race, particularly when it formed a majority of the inhabitants of a considerable area, to rule over the others and establish a government of its own. That desire never could be very fully realized, however, partly because

of the number of races, and partly because some of the more powerful European countries like Germany, Austria, and Russia have kept the bad feeling alive. Discontent and strife have, therefore, been constant.

As a result of the World War, the old boundaries of countries in this region have been set aside, and, as far as possible, those people who are akin in language and race and who form a majority of the inhabitants over an extensive section have been allowed to form an independent nation. How many nations do you find there now (Fig. 248)? Some of these are entirely new, and all the



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Fig. 256. — Shoemakers in the street in Constantinople

Much of the business of Turkish cities is carried on in the streets. Instead of stores, many of the merchants have open booths in which they display their wares.

lay across the narrow outlet of the Black Sea into the Mediterranean. The most convenient point to cross was where Constantinople stands. From there they often moved westward along the coast toward Greece; or, taking the easiest route to the Danube, they followed its valley into central Europe and even beyond. Trace this route on Fig. 248.

The latter was for a long time the route for trade as well as travel. Until the discovery of America, the road past Constantinople was one of the principal routes by which the treasures of the Indies were brought to western Europe. Thus the location of these countries

old ones have had their frontiers greatly changed so as to include only the people who belong together. This is the principal reason for the very irregular boundaries. Trace some of them. Which countries have the sea or a river for a part of their boundaries?

Since these countries are especially important as a bridge between Asia and

northwestern Europe, the leading railway may be expected to run northwest from Constantinople. Beginning

there, it follows the course that the hordes from Asia, who were bound for central Europe, long ago discovered to be the most level and, therefore, the easiest. Trace this road through Sofia, Belgrade, Budapest, Vienna, and Prague (Fig. 248). Notice that it goes on to Berlin. What countries does it cross? What capitals are located upon it? Which of the countries in this region seems least benefited by this railway?



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Fig. 257. — A view of the famous churchyard in Hallstatt

The little town of Hallstatt is picturesquely situated in the Tyrolean Alps in Austria. It is famous for its old buildings.



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Fig. 258. — Castle Karlstein, near Prague

This part of Europe has many such castles, built by royal families. Many of them are centuries old.

Prague, the capital and leading city of Czecho-Slovakia, enjoys two advantages that greatly affect its manu-

facturing. Coal

and iron ore are both found in abundance in its

vicinity. The people of Czecho-Slovakia are more highly educated than any other people in this part of Europe. With the advantages of education and the abundance of raw materials, it is not surprising that manufacturing is better developed here than elsewhere in all these countries. Among the manufactures are metal goods, textiles, beet sugar, and

2. Leading cities on this route

a. Advantages that Prague enjoys

glassware. Bohemian glass, made from the peculiar sand from the mountains near at hand, is famous.

Until 1919 Vienna was the fourth city in size in Europe. Can you name the three that were larger? Austria, of which it is the capital, then included all the territory shown under that name in Fig. 248, most of Czecho-Slovakia, and

*b. The past
and the future
of Vienna
and Budapest*



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Fig. 259. — Peasants plowing in Hungary

Notice the crude plow and the oxen. Do you think a farmer could cultivate much land in this way? Tell how the American farmer plows his land.

much other land besides. As the capital of so great a country, it contained numerous royal palaces, government buildings, and magnificent parks and drives. There was also a large number of factories, and its manufactures, like those of Paris, were distinguished for their peculiar grace and beauty. Now it is the capital of a very much smaller country which has only about one fourth its former population. How do you imagine

this will affect its appearance and population in the future?

Budapest is one of the chief flour-milling centers in the world. The vast plains of Hungary surrounding it grow large quantities of grain. Like Minneapolis (p. 95) and Odessa (p. 234), this city is a center for milling and shipping wheat. Minneapolis owes much to the Hungarian mills; for its methods of producing flour were first extensively used in Budapest.

The city is the capital of Hungary and has a double name, because Buda is on one side of the Danube River and Pest on the other, the two being connected by several bridges. While it has grown remarkably in recent years, there is doubt about its future prosperity; for Hungary has less than half its former area, and its capital, like Vienna, may suffer seriously.

Constantinople has long ranked as one of the foremost cities of the world. Located at the point where

c. Constantinople

Asia and Europe meet, it has attracted people from all the nations of the earth. As the capital of the Roman Empire of the East, it was for many centuries the leading center of government, art, and learning. One of its churches, completed about 550 A. D., still ranks among the finest structures ever built.

In 1453 it was conquered by the Turks under Mohammed II; and from that time until the present it has been the capital

and largest city of the Turks. Under Turkish government it soon lost its leadership in the world, and became distinguished for its backwardness. For example, the city has very few street names and house numbers. It is divided into quarters, and mail reaches a person by being carried to the quarter in which he lives, where further progress depends upon chance inquiries by the postman.

The character of the Turk greatly influences the languages used and even the dress of the people. On account of his backwardness and cruelty, the hundreds of thousands of foreigners from all sections of the earth who have settled there and now make up about half of the population have had no desire to adopt that country as their own, as foreigners become citizens of our country. Instead of becoming Turks they prefer to remain Greeks, or Arabs, or Russians; accordingly, each foreigner continues to speak his native tongue, and to dress as he did in his own country. Thus there are dozens of languages in use, and one who knows only two or three is often helpless. Common handbills and notices are usually printed in four languages. One can imagine, too, what a variety of costumes may be seen on the streets.

Ever since 1453 Europeans have been hoping to expel the Turks from Europe; and it was nearly accomplished as a result of the World War. Constantinople and a small area outside the city are still occupied by the Turks, but the water route between the Black Sea and the Mediterranean is no longer under their control; the peace treaty which ended the war declared this water route open to all nations, to be used by all on equal terms.

Two other capitals are located on this railroad. Name them (Fig. 248). What tributaries flow into the Danube near Belgrade? What advantages in location has that city over Sofia? Do you see any disadvantages in the fact that the capital and largest city of Jugo-Slavia is so near a foreign country?

d. Location of Belgrade and Sofia

On entering Czecho-Slovakia from Germany by this route one passes through a gap in the mountains and comes out into a broad and nearly level basin almost surrounded by mountains. Prague is near its center, and in all directions

e. Country scenes along this railway



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Fig. 260. — A public letter-writer, Constantinople

In Turkey and many other countries in Asia, and even in some parts of Europe, every town and city has its public letter-writers. Why do the people not write their own letters?

from it there is highly cultivated land. In the growing season one sees fields of wheat, oats, rye, barley, potatoes, sugar beets, and hops; also many cattle and sheep. The scenes are similar to those in our North Central States, although the



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Fig. 261. — Peasant women of Jugo-Slavia spinning

Machinery is not used in these old European countries to the extent to which it is used in America. The women still do much spinning and weaving and the ways of living are much the same as they were in our country 150 years ago.

surface is rougher. On the mountains and in the wilder sections unsuited for farming there are extensive forests.

After entering Hungary from Vienna one hardly cares to look out of the car window much of the time, because the view for a distance of more than 200 miles varies hardly at all. This region resembles our western plains, having long stretches that are as level as a floor, no trees except in villages and along the

streams, and little to interest one except prosperous farms. This is one of the finest agricultural sections in Europe, and is noted for its wheat, corn, and live stock. In some of the more hilly portions grapes are extensively grown, and other fruits, such as plums, apples, pears, and cherries are common. How fully does this picture recall Iowa and the Dakotas (p. 96)?

On leaving Belgrade, the capital of Jugo-Slavia, one enters mountainous country again. At Sofia, in Bulgaria, the Balkan Mountains, after which the Balkan Peninsula is named, are crossed. On the south side of these mountains the climate is quite different from that on the north side. The countries so far crossed have hot summers and cold winters, like our northern states; in southern Bulgaria, however, the Balkans shut out the cold north winds and cause a very mild climate. On that account the crops vary greatly from those farther north. For example, roses are particularly common. On a spring day, as soon as the train enters the plain from the north, the fragrance of roses greets the traveler, and he sees hundreds of acres of rose-bushes about him. They are raised for their petals, from which perfume is made.

A journey over this railroad gives a fair idea of the agricultural products of these countries. The different climate elsewhere, however, permits different crops. The western section that borders the Adriatic Sea has a mild climate and a heavy rainfall. In some places as many as 200 inches of rain fall in one year. What is the amount where you live? There the olive,

How the different climate elsewhere causes different crops

mulberry, and grape flourish. Toward the east the rainfall decreases, so that the eastern parts of Bulgaria and Rumania are too dry for farming and are given up to grazing.

Greece lies too far south to be in the path of the rain-bringing winds, and what rain it receives comes mainly during the winter. The climate is mild, however, and, with the aid of irrigation, figs, grapes, olives, and tobacco are grown.

Only two of these countries, Hungary and Rumania, have extensive plains.

The plains are noted for their wheat and corn. Most of the surface elsewhere is mountainous, and agriculture is possible only in the narrow valleys. Yet, in spite of these disadvantages, it is the principal occupation throughout this region.

Which of these countries border the Mediterranean? Name some of their seaports. Which depend most upon the Danube for an outlet by water to the sea?

This river is connected by canal in Germany with the Rhine (Fig. 201), so that goods bound for England can go west, as well as east by the Black Sea and the Mediterranean. Trace each route to London from Budapest. Every one of these countries needs an outlet to the sea by water, particularly for such heavy and bulky freight as timber, oils, and grain. Transportation of such things by rail is too expensive.

The principal Mediterranean port for these countries is Saloniki. In ancient times there was an easy road from that point northward through river valleys to Nish in eastern Jugo-Slavia. A railway now follows that ancient route, connecting at Nish with the Berlin to Constantinople railroad. This is, therefore, the chief rail route from these countries to the Mediterranean; and since the harbor at Saloniki is especially good, that city is next to Constantinople in size and importance. Athens is nearly as large; but it lacks direct rail connections with other countries.

Athens is the capital of Greece, located six miles inland from its port, called Piraeus. In ancient times, before Rome reached its fullest grandeur and before Constantinople was heard of, this was the most important city in the world. The most civilized people were then collected about the eastern Mediterranean, and Athens was their leading center.

Why Saloniki is the leading coast city

The importance of Athens



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Fig. 262. — Old citadel at Saloniki

It led the world in architecture, sculpture, poetry, and learning, and in many respects its works along these lines have never been surpassed. Some of the most highly prized treasures in the great museums of Paris and other European cities are fragments of sculpture that have come from



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Fig. 263. — The ruins of the Parthenon at Athens

Long before the time of Christ, Greece was the most civilized country of the world, with hundreds of ships on the Mediterranean, many cities and some of the most beautiful buildings ever erected. The ruins of one of the most famous temples, the Parthenon, are shown in this picture. The Parthenon stands on the *Acropolis*, or citadel, of Athens.

Athens. Along the sides of some of its streets and on the flat-topped hill at the edge of the city called the *Acropolis*, are hundreds of statues, monuments, and ruins of buildings which are still very beautiful. While Athens is now a thriving city, these reminders of the distant past are the chief attraction to many of its visitors. How was the location of the city favorable to leadership in ancient times?

1. Explain the importance of the position of these countries. 2. Give reasons for their many languages and irregular boundaries. 3. What course does their principal railway take,

and why does it follow that route? 4. State some of the advantages that Prague enjoys. 5. What can you tell about the past and future of Vienna? Budapest? 6. Show how important Constantinople has been. 7. What has been the influence of the Turks upon it? 8. Describe the

country scenes along the chief railway in this region. 9. How do the climate and farm products differ along the western coast? 10. How prominent is agriculture in these countries compared with other occupations? 11. In what ways is the Atlantic Ocean reached by water from these countries? 12. Why is Saloniki the leading coast city? 13. Show the importance of Athens.

1. Make a drawing of the Danube River and locate the principal cities upon it.

Suggestions
for extra
work

2. Add to this drawing a line to represent the Berlin to Constantinople railway; also the road to Saloniki. 3. Describe some of the costumes you would expect to see on the streets of Constantinople; or make a drawing or painting to show them. 4. A surprising number of great cities are on very nearly the same parallel of latitude as Constantinople. Find several of them (Fig. 315), and explain why there are so many. 5. What reasons can you give why Bucharest and Sofia are not located on the Danube? 6. Read the story of the Greek boy Yanni, in *Child Life in Other Lands*. 7. Tell what a tourist in Greece should see.

1. How does the coast line of Europe compare with that of South America? 2. In what general direction do the greatest highlands of Europe extend? 3. Name three other highlands that run in a different direction. 4. Name the countries of Europe that consist chiefly of highlands. 5. Of lowlands. 6. Name the countries that have no seacoast. 7. Name the countries that have areas below the level of the ocean. 8. What country has the largest number of lakes?

9. Would you expect to be able to see across the Strait of Dover on a clear day? 10. From Ireland to Scotland? 11. Most of the great cities of Europe are between the forty-seventh and the sixtieth parallels of latitude. Where does the same belt cross North America? 12. Canals are shown chiefly in the green areas of Fig. 201. Why? 13. Locate the capitals and largest cities of the British Isles; France; Germany; Poland. 14. Locate the Rhine River; the Danube; the Thames; the Seine; the Vistula.

15. Would you expect to be able to see across the Strait of Gibraltar? 16. The Strait of Messina? 17. From Corsica to Sardinia? 18. Locate Madrid; Lisbon; Naples; Rome; Milan; Venice; Genoa. 19. Which of the cities just named are important railroad centers? 20. Which one of them is situated on a plateau? 21. Are most of the great cities which you have studied so far highland or lowland cities? 22. Does the nearness of most cities to great waterways help you to answer the last question? 23. Locate Mt. Vesuvius; Mt. Etna. 24. To what country does most of Morocco belong? 25. Algeria? 26. Tunis? 27. Between what countries of Europe are there high mountain barriers?

28. What boundaries of the countries of southeastern Europe appear to you to be natural? 29. Which appear to be artificial? 30. What country of southeastern Europe contains many islands that served the ancient mariners as stepping stones to Asia? 31. Locate Vienna; Budapest; Constantinople; Odessa; Saloniki; Athens.

Map
questions
on Europe



Fig. 264

PART V. ASIA

I. GENERAL FACTS

Since Asia is on the opposite side of the northern hemisphere from the United States, it can be reached by traveling either east or west. From San Francisco or Seattle one can cross the Pacific Ocean to Yokohama in Japan and then proceed farther to Shanghai or Hongkong on the coast of China. This Pacific route is the easier.

Or one can cross the Atlantic Ocean from New York to Europe, and then proceed by rail across Europe either to Moscow in Russia and on into Asia, or to Constantinople. A third route leads from New York to the Strait of Gibraltar; then through the Mediterranean Sea either to Smyrna in Asia Minor or to Constantinople; or through the Suez Canal around Arabia to India. Trace these routes in Fig. 315. Also follow them on a globe. Which one do you think would be the most interesting, and why?

Asia is larger than any other continent. Indeed, it is greater than North and South

America together, or Europe and Africa together. It has more inhabitants, also, than any other continent. China alone has about two thirds as many people as all Europe, and India has more than any other country in the world except China. Find these two countries in Fig. 268. More

than one half of all the people on the earth live in Asia.

While it is easy to reach Asia, it is nearly impossible to cross it in most sections. Europe and Asia form only one body of land (p. 195); therefore the railroads of Europe might be expected to extend into Asia, all the way to the Pacific coast.

Since Asia is so large and contains so great a population, many such trans-continental roads might be expected. Yet there is only one such road, and much even of it lies farther north than the most northern railway across Canada (Fig. 59). Why are there not several trans-continental lines in the southern half of the continent, just as there are several crossing the United States? Why is the only one located so far north?

The climate and surface features largely answer these questions. Western Asia south of the fiftieth parallel of latitude is a vast arid or desert land (Fig. 265). Aral

Sea is in the midst of a region that receives only a few inches of rain per year; and, although great rivers from Russia empty into the Caspian Sea, the dry climate causes its waters to evaporate so fast that it has no outlet. Its waters, therefore, are salty like those of Great Salt Lake.

Some reasons why there is only one railroad crossing Asia east and west

1. The check to railroads in western Asia

How Asia compares with the other continents in area and population

Most of the territory extending from Aral Sea all the way to Africa is arid. Name the countries included in this region. Nearly all of Arabia, for example, which is a peninsula about as large as all our states east of the Mississippi River, is a desert.

the world. Mt. Everest, the highest peak, rises over 29,000 feet, or five and one half miles, above the level of the sea. Locate this mountain in Fig. 267. Point out other ranges farther west and north.

There are great stretches of level land among these mountains, but they are plateaus rather than low plains. One great highland is the plateau of Tibet, which is from two to three miles above sea level. That is higher than most of the mountain peaks in North America. This highland, consisting of mountains and plateaus, is even more extensive than the arid region in the west. Fig. 264 shows how high above sea level a train would have to climb in crossing central Asia. What difficulties do you see in building railroads there?

Neither the arid nor the mountainous section can support many inhabitants, because the one is too dry for agriculture without irrigation and the other is

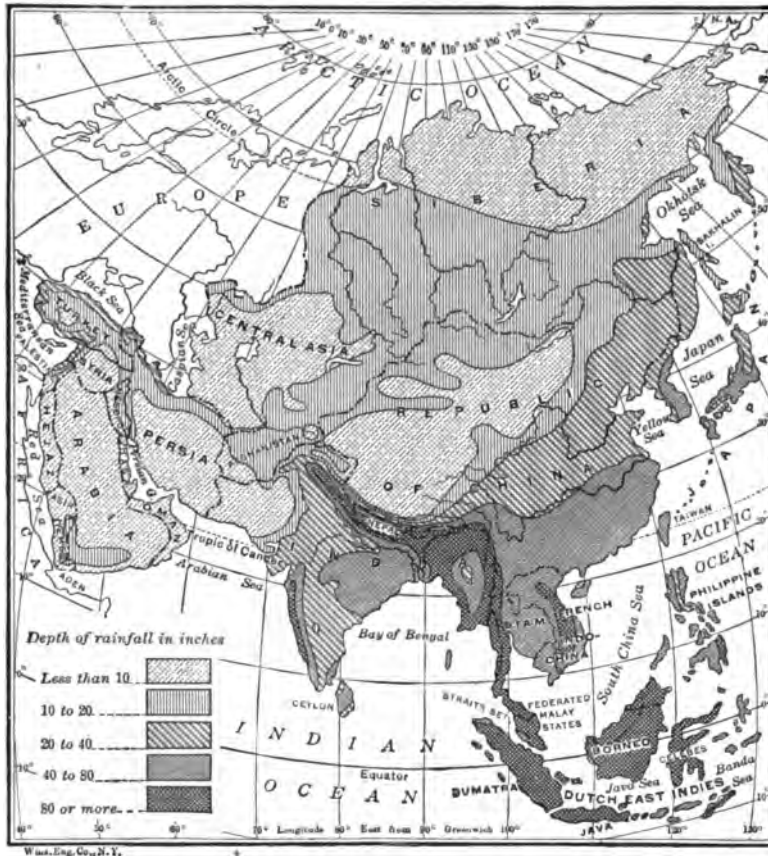


Fig. 265. — Annual rainfall in Asia

In an east and west direction the dry area of western Asia varies from 2,000 to nearly 4,000 miles in length. Can you suggest some of the difficulties in the way of building railroads across such a region?

Farther east there is another barrier as great. That is the mountainous and plateau region in central Asia. Among the mountains are the Himalayas, just north of India, the loftiest mountain range in

too mountainous and cold. A transcontinental railway, therefore, starting at the European boundary would have to run for thousands of miles through country that is either arid or mountainous and cold, and everywhere sparsely settled, before reaching the densely populated part of China. This makes railroad building almost impossible.

The one line across the continent is called the Trans-Siberian Railway. It

2. The check to railroads in central Asia

runs from Petrograd through Moscow in Russia to Vladivostok on the Pacific coast. Follow its route in Fig. 268, and note how near one can come to Peking, the capital of China, by this line. There is more rain along its western course than in the country about Aral Sea; and the mountains in the east are much less difficult to cross than those farther south.

Throughout the whole distance, however, the population is scattered, and it is doubtful if the road would ever have been built had not Russia felt the necessity of an outlet to the sea in this direction. Recall some of the difficulties Russia has had in reaching the sea either from Petrograd or from Odessa (p. 233).

This part of Asia, called Siberia, has long belonged to Russia, and it was that country that built this railway. What great disadvantages do you see in its use as an outlet from Europe to the ocean?

1. Describe the route you would take from your home to Peking, China, and tell why you would choose it. 2. Compare Asia with North America in area. 3. Tell what you know of the population of China; of India; of Asia. 4. Why is it difficult to make a trip across the continent of Asia? Why are there so few railroads

Review
questions

The most interesting part of southwestern Asia

in the southern part of Asia? 5. Locate the Trans-Siberian Railway.

1. Find the time of day in Shanghai when it is noon at your home. 2. What is the distance from your home to Vladivostok? 3. On a train traveling thirty miles an hour, how long would it take to make a journey from Petrograd to Vladivostok? 4. How would you prove that Asia has greater extremes of heat and cold than any other continent?

Suggestions
for extra
work



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Fig. 266. — The Buddhist temple in Lassa, Tibet

The name of the god worshiped by the people of this country is Buddha, and their religion is called Buddhism. Lassa is a sacred city of the Buddhists. Locate it on Fig. 277.

II. SOUTHWESTERN ASIA

The part of southwestern Asia that is of most interest to us is a very small section, called Palestine, near the eastern end of the Mediterranean Sea. Long before the time of Christ the Hebrews escaped

from Egypt and came to this little country, which was their "Promised Land." They must have found it very inviting, since they described it as "flowing with milk and honey." Here they developed a nation with Jerusalem as its



Fig. 267

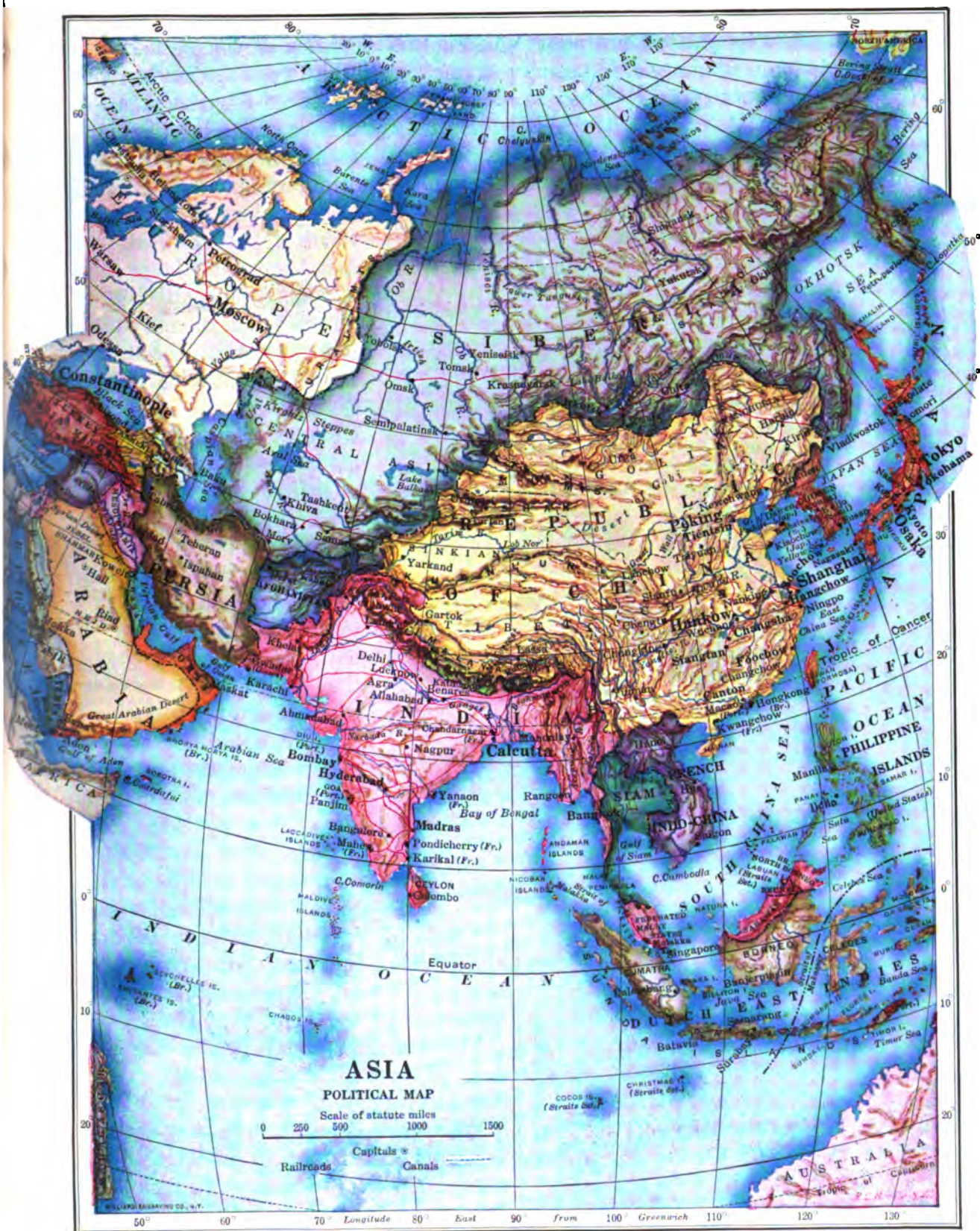


Fig. 268

capital; it reached its greatest prosperity under King Solomon. Can you tell some of the events that happened here, as described in the Old Testament? This is the scene also of events in the New Testament; for this is where Christ lived

in Fig. 277. Some of the best known among the Turkish rugs are made about Smyrna and are called Smyrna rugs.

Possibly you have seen advertisements of Turkish tobacco. This is one of the most important products of Turkey.

Other things that we receive from southwestern Asia are dates, figs, and olives. Still another is an especially fine kind of coffee. It comes from Mocha, and is called Mocha coffee. Find this place on Fig. 277. Cotton, rice, grain, and garden vegetables are also raised.

Though these agricultural products are valuable, southwestern Asia is not able to raise enough of them to make

the country a prosperous one. One reason is that much of the surface of the land is mountainous. As shown by Fig. 267, which sections are they? In addition, as has been stated (p. 258), the rainfall is only a few inches per year over

Why the products are not more important

1. How the surface and climate check production

almost all of this vast area. And water for irrigation can be provided for only a small part of the land.

The character of the people also hinders production. Although the Turks now control only a small part of this region, most of it has been for a long time under Turkish rule, and the Turks have always opposed progress. You have seen



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Fig. 269. — A village school near Jerusalem

Tell all the ways you can in which this school is different from yours.

and taught. On that account it is called the Holy Land.

From southwestern Asia we import many beautiful and interesting manufactured articles. In Persia and Turkey thousands of beautifully colored rugs, carpets, and shawls are woven every year. Locate those two countries

The principal products that we obtain from southwestern Asia

to what extent they have done this in their capital, Constantinople (p. 251).

2. How the character of the inhabitants checks it

They have followed a similar course elsewhere. One of their worst customs concerns the collection of taxes. Instead of fixing a definite rate of taxes and paying men a salary for collecting them, it has been their habit to agree with some man to accept a certain amount from each district and to allow each collector to get his pay by collecting as much more as he can. Under such an arrangement few persons can save anything beyond the bare necessities of life, and modern improvements cannot be expected.

There is a prospect of an advance in some parts of this territory, for the Turks were defeated in the World War and lost portions of their empire. The British have taken over the section called Mesopotamia, through which the Euphrates and Tigris rivers flow to the Persian Gulf. They have also taken control of Palestine, which had been under Turkish rule, while the French govern the rest of Syria. These two European nations will, no doubt, bring about many improvements. The Greeks also have a small area across the Aegean sea from their European possessions. It includes Smyrna, an old Greek city. The Aegean coast and the islands near it were settled by Greeks about 3,000 years ago, but were under Turkish rule for many centuries.

1. What is the most interesting part of Asia to us and why? 2. What name is given to the country surrounding Jerusalem? 3. What manufactured products do we receive from southwestern

Asia? What natural products? 4. Give two reasons why the products of this region are few in number and small in quantity. 5. Tell how the Turks collected taxes in the countries under their rule. 6. What effect has the World War had on Palestine?

Review questions

1. The Jews who escaped from Egypt into Palestine called it the Promised Land and described it as "flowing with milk and honey." Does that country deserve this description now? If not, what has brought about the change? 2. Make a list of the places you would want to see if you made a trip to the Holy Land. 3. From what do the Persians make their fine rugs and how are they woven? 4. Find out something about the life of olive trees.

Suggestions for extra work



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Fig. 270. — A sword-maker at Damascus

These beautiful pieces of steel are made entirely by hand. The swords of Damascus have long been famous for their beautiful carving and keenness of edge.

III. SIBERIA AND CENTRAL ASIA

The traveler from Petrograd to Vladivostok sets out on a journey of nearly 5,500 miles, and even after crossing the Ural Mountains into Asia he still has 4,500 miles to go. Recall the distance from New York to San Francisco. At first he passes through level country where farming is well de-

What the traveler sees along the Trans-Siberian railway

of them. The most important is Tomsk. Since the road was built only a few years ago, perhaps you can suggest why some of the towns are many miles from any railway station.

After one crosses the Yenesei River, near the middle of Siberia, the scenery changes greatly. One enters a region of low mountains, which continue for many hundred miles. Farms almost disappear, there are great forests, and mining is an important industry.

Naturally the principal farm products form a large part of the freight on this road. The most important are wheat, cattle or meat, and butter and eggs.

Minerals, also, are prominent. Still other kinds of freight are brought long distances to the railway from both the south and north. Many caravans bring goods from the south; and the vast forests on the north, extending from Europe to the Pacific, supply great quantities of furs.

The more common animals are the fox, sable, otter, ermine, wolf, bear, and gray squirrel. In this cold climate their fur grows especially thick and soft. Siberia now supplies more furs than any other country, not excepting Canada.

In 1915 goods worth \$45,000,000 were shipped from the United States into Si-



Fig. 271. — Fishing in the Sea of Galilee

Both in ancient and in modern times this fresh-water sea, that pours its waters through the River Jordan into the Dead Sea, has supported many fishermen.

veloped. The farm products to be seen are the ordinary grains, particularly wheat; potatoes; onions and other vegetables; and live stock. How do these products compare with those in western

Canada? While the population is thin, there are some large towns. Name several

1. The difference between the western and the eastern half of the journey

2. The goods that one sees along the road

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beria by way of Vladivostok. Can you suggest what some of the articles must have been, and for what sections they were bound?

The most important interior city is Irkutsk, near the center of the route; here there is extensive trading in silk, porcelain, tea, and furs. You will find out later where the first three of these articles come from (pp. 269, 272).

The region east of the Caspian Sea is also a part of Russia. The lack of rain

there would lead one to expect few cities. Yet the map shows several, the most important of which are Bokhara and Khiva (Fig. 277). What are the reasons for their growth? The fact that Bokhara and Khiva rugs are well known in the United States suggests one of them. While the region is arid, there is enough grass to support large herds of sheep; and they produce the wool from which many of the rugs are made, as in Persia and Turkey in Asia (p. 262). Irrigation, also, makes farming possible.

Yet there is another important reason for these cities. For many centuries the principal overland route between China and Europe led through these points. Marco Polo of Venice, the most celebrated traveler of the Middle Ages, crossed Persia and then passed eastward near Bokhara and Khiva on his way to China. Caravan routes leading from China, India, and Persia to Russia have

for ages come together in this section. The trade caused by the caravans led to the growth of these cities. Formerly the caravans traveled on to Russia; but now, as you can see in Fig. 268, railroads take their burdens at these places. Note the courses of these roads.

1. What is the length in miles of the Trans-Siberian Railway? 2. What differences in the country would a traveler notice in making a trip from Petrograd to



Fig. 272. — A view of Vladivostok, showing a part of the harbor

Vladivostok? 3. What farm products and other goods would he find for sale? 4. Name the fur-bearing animals of Siberia. 5. Why have the cities of Bokhara and Khiva thrived though located in an arid country?

1. Why is the water of the Caspian Sea salty while that of Lake Baikal is fresh? 2. Describe the difference in clothing you would expect to see in a trip from India to Siberia. 3. Why are there no seaports on the northern coast of Siberia?

Review questions

Suggestions for extra work

IV. INDIA, INDO-CHINA, AND THE MALAY PENINSULA

The vast region known as India is about half as large as the United States and is part of the British Empire (Fig. 315). The English have made many improvements there. Extensive railroads have been built, so

Ease of
travel

Trace the French possessions. Locate the independent country of Siam.

In Fig. 277 note the latitude in which most of India lies. As you might expect from this latitude, it has a tropical climate, with a wet

The season
in which to
visit India

and a dry season. During the dry season northeast winds from the heart of the continent blow over India, bringing little or no moisture. There is so little rainfall in some years that the water supply gives out, crops dry up, and the people suffer from severe famines. It is also intensely hot on the plains, and white men can live comfortably only in the mountains where it is cooler. It is evident that traveling would not be



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Fig. 273. — A general view of Delhi, the capital of India

that one can now reach almost any part of India by rail. In fact, India has more than half the total railroad mileage of Asia.

At any of the large ports at which you might land, as at Bombay or Calcutta, you would find an European section resembling one of our own cities. Moreover, you could make yourself understood in your own language; for, although there are many native tongues, English is commonly used in business affairs.

The countries east of India also enjoy a certain amount of modern conveniences, for several of them are under the control of European nations. In Fig. 268 locate Singapore, an important British city at the southern end of the Malay Peninsula.

enjoyable in this season.

In the wet season, which comes in our summer, winds blow over the land from the direction of the sea. Abundant rain falls over much of the country, and crops flourish. Although the heat is still great, it is more endurable than in the dry season. This, then, is the season to choose for visiting India. From its location, why might the Malay Peninsula be expected to have more rainfall throughout the year than India?

Probably you would be more impressed with the peculiar customs of the people than with anything else you might see. You would soon notice that the Hindus, as the people of India are called, are divided into classes or *castes*; unlike ourselves,

they do not believe that all men are born free and equal. On the streets you would

Some customs of the people which would seem strange to us

see mainly the lower castes, to which belong the poorer people, the shopkeepers, servants, laborers, and beggars.

If you wondered why so few of the upper castes appeared, you would learn that it is because they think it degrading to mingle with those of a lower caste. They will not eat at the same table with them, nor will they taste food on which so much as the shadow of a lower-caste person has fallen. How might such a belief prevent progress?

The Hindus have many superstitions which would seem strange to us. For instance, thousands make pilgrimages yearly to the Ganges River in eastern India; for they believe that its waters are sacred and that bathing in them washes away disease. In Siam you would be surprised to find that next to the king, the natives hold the white elephant in highest reverence. Siam is often called the land of the white elephant.

As you traveled through India you would find about

The occupation in which most of the people are engaged

nine tenths of the population living in the country, since

farming is the chief occupation. Millet is the chief food of many of the people because it can be raised even in the drier sections. Another important

grain is wheat. Great quantities of rice are grown on the flooded lowlands both in India and in the Malay Peninsula. In the Malay Peninsula there are many large rubber plantations. You would also see cotton, sugar cane, tobacco, and poppies from which opium is made. Spices and tropical fruits grow in southern India and in the region north of Singapore.

Tea is a very important crop. You would probably visit a tea plantation. The tea plant thrives best on a hillside where the water can drain off quickly.



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Fig. 274. — In the native section of Bombay, India

Many of the cities of the Orient have a foreign section that is modern in most respects, and a native section where the natives live much as they did before Europeans came.

It grows from two to four feet high, and has leaves resembling those of a rose-bush. The leaves are picked several times a year, boys and girls often helping,

and are carefully dried before being packed.

Trace in Fig. 267 the course of the Ganges River. In what mountains does it rise? Note the great extent of its basin. That is the part of India you would be most likely to visit, for it has the most fertile land, and over a third of the immense population lives there.

Why the Ganges Basin is the most interesting section to visit

more rain falls there than in almost any other part of the world, the river floods much of the valley, depositing over the fields a rich sediment brought from the mountains. Because of these facts the Ganges Valley is able to support one of the densest populations of the world.

You would pass hundreds of temples along the banks of the river, for, as we have seen, the natives believe the Ganges



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Fig. 275. — Elephants hauling logs in India
In India the elephant is a common beast of burden.

Near the mouth of the river you would pass through a dense tropical jungle, where tigers, elephants, crocodiles, poisonous snakes, and many other dangerous animals live. Beyond the swampy lowland is Calcutta, the largest city of India. Locate it in Fig. 277.

You would now be traveling through one of the oldest farming regions of the world. Rice, tea, and many of the other crops already mentioned grow here. The great fertility of the region is due to the Ganges River; for throughout the dry season it supplies water for irrigating the crops, and during the wet season, when

is sacred — probably because it is so valuable in irrigating and fertilizing the land. In the holy cities along the way you would see many of these temples, and flights of steps, thronged with pilgrims, leading into the water.

1. What facts help to make traveling easy in India? 2. In what season could one best visit that country? 3. Mention some of the strange customs of the people. 4. Show the prominence of agriculture, and name the leading products. 5. Why is the Ganges Valley the most interesting section to

Review
questions

visit? 6. Locate the following: India; Calcutta; Himalaya Mountains; Siam; French Indo-China; Singapore.

1. Read Kipling's *Jungle Book*. 2. On a globe find which is the shortest water

route from Bombay to London. 3. What important products would you expect India to send to Great Britain? What would you expect Great Britain to send to India in return?

Suggestions
for extra work

V. THE FAR EAST

1. The Chinese Republic

The Chinese are one of the oldest civilized races. They had made great advances long before the time of Christ. Therefore, it is not strange that some of the most important arts that man has ever learned

The progress
of China in
early times

have come from them. For instance, they learned to make porcelain dishes long before the Europeans; on that account such dishes are still called *chinaware*, even though manufactured in the United States or in Europe.

The Chinese invented gunpowder. Our firecrackers for the Fourth of July used to come from China. You may still see packages of firecrackers marked in Chinese characters.

They also discovered how to make silk and paper, and they invented the art of printing. They were the first to use the compass. What articles have you seen that probably came from China?

You would be likely to feel at home in China so far as the climate and appearance of the country are concerned. In Fig. 315 compare the latitude of China with that of the United States. How much

farther south does China reach than our most southern state, Florida? How much farther north than our most northern states? From this comparison it is plain that much of China has a temper-

Resemblances
and differ-
ences between
China and the
United States



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Fig. 276. — A temple in Calcutta, India

What differences do you notice between these buildings and those of our own country?

ate climate. Perhaps it will surprise you to learn that crossing China from east to west is about as long a journey as crossing the United States. From the Chinese coast you would travel westward over

1. Similarity in
climate and ap-
pearance of the
country

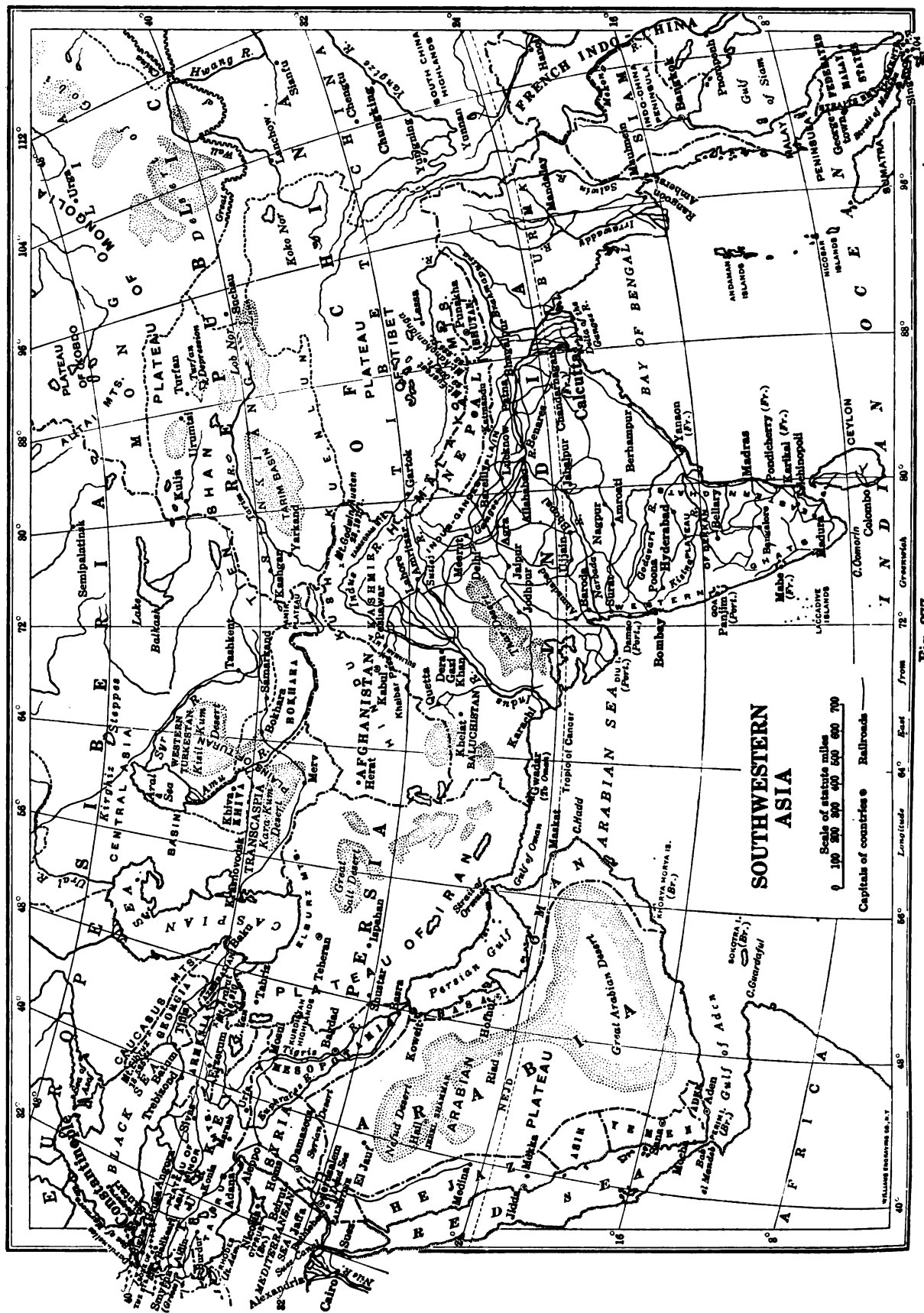
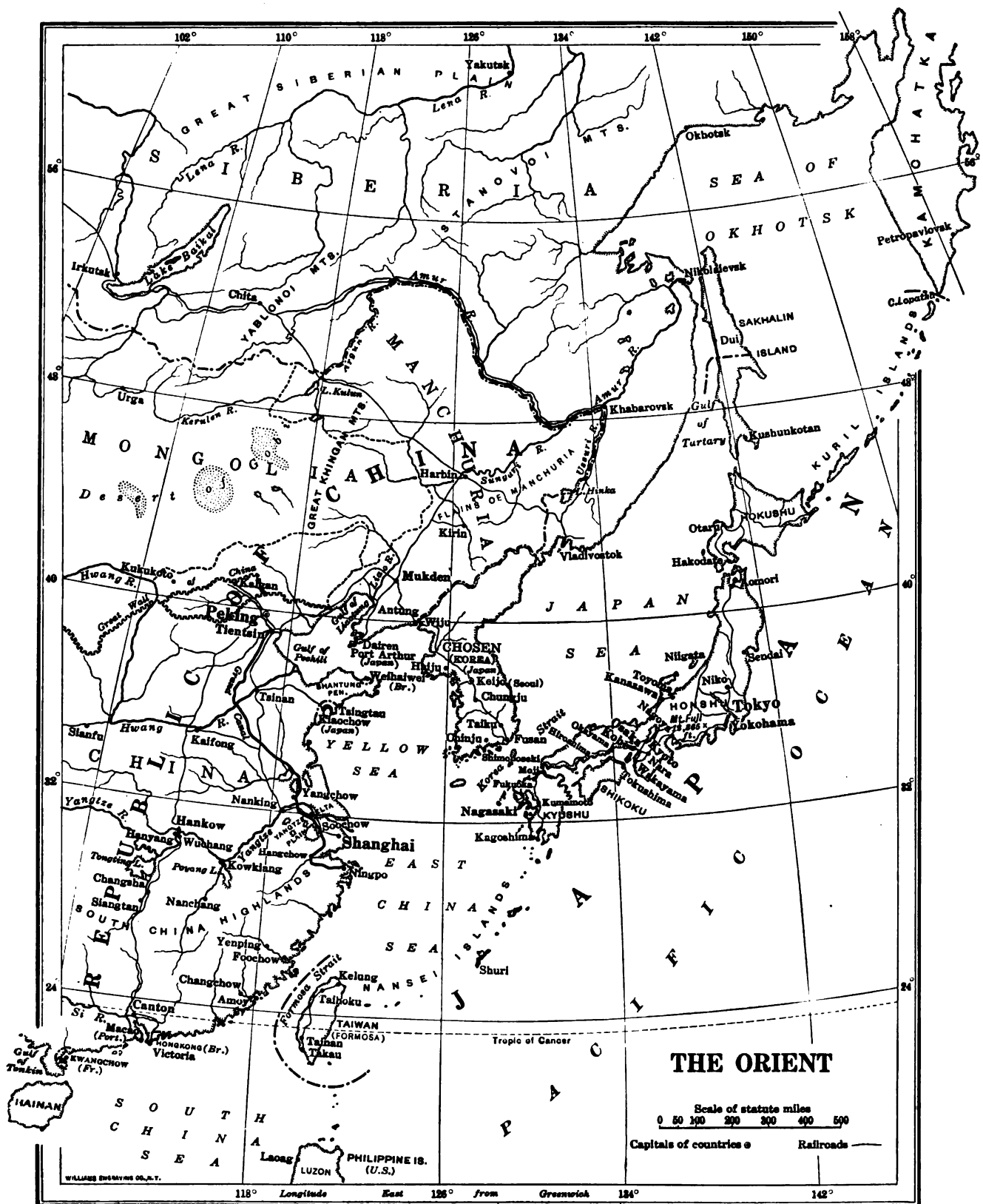


Fig. 277



broad, fertile valleys resembling those along our Mississippi Basin. Beyond these lowlands rise vast plateaus (Fig. 267) which remind one of our western plains; for the chief occupation is herding,

and one of the chief articles of food for the Chinese. Among the important products which we do not produce are tea and raw silk; China produces more of the latter than any other country in the world except Japan.



Fig. 279. — A Chinese pagoda and temple

and there are some desert areas where even that is impossible. Along the western border extend many lofty mountain ranges. What great plateau lies in the southwestern part of China (Figs. 267 and 268)? What section of great importance in our country is unlike any section in China?

Since the climate of China is somewhat like our own, we may expect many of the same farm products that are raised in the United States. Wheat, barley, corn and other grains, and beans, peas, and many varieties of vegetables are grown in northern China. In the south sugar cane, cotton, and oranges are grown. Rice, of which we raise only a little, is a principal crop

2. Similarity in farm products

ly of Europeans, resemble American or European cities very closely. The native sections of these cities, although they have some fine homes, are generally crowded and dirty, with narrow, unpaved streets, and without water systems, sewers, or lights.

Many of the cities are surrounded by high walls with gates that are closed at night, as was the case in European cities in olden times.

The houses, seldom more than one story in height, are built close together, and the stores have gaudy decorations and signs. The streets are crowded with *rickishas*, or sedan chairs carried by men; with men pushing wheelbarrows or drawing low, heavy two-wheeled carts;

The Chinese cities and towns appear very different from our own.

In our large cities, such as

3. Differences in appearance of cities

New York or Boston, the foreign quarter is likely to be shabby and run-down, while the native section is well built and well kept. In the Chinese cities and ports where foreigners—British, French, Americans, and others—are allowed to make their homes, the opposite is true. The foreign colonies, like those of Shanghai and Hongkong, consisting chief-

with peddlers carrying baskets slung from poles across their shoulders; with cripples and diseased beggars seeking alms; and with women carrying children on their backs. Even in Peking, the capital, where there are many wide streets, most of the streets are too narrow for carriages, and since most of them are not paved they are worn in deep ruts, and after rains are full of mud-holes.

Many of the cities are so crowded that great numbers of the people live in boats on the harbors and rivers. Especially is this the case in Canton, the largest port of southern China. Chickens are kept, and even gardens are raised, on many of these boats. Locate the cities mentioned on Fig. 278.

Traveling accommodations in China are not so convenient as they are in this country. China has very few railroads; and only a few cities in the interior can



Photo by Elmendorf © Ewing Galloway

Fig. 280. — Market scene in Hongkong
Study this picture with the text to the left.

be reached by rail. In Fig. 278 trace the railroad lines. In what sections are they

found? What 4. Differences
important cities in ways of travel
do they connect? Between Chinese seaports and river ports, travel is generally by water, and good accommodations can be secured on the larger river boats. Since the rivers are open to navigation far up toward their sources, the easiest way of getting into the interior is by boat, especially on the Yangtze River. Trace this river on the map.

Canals connect many of the rivers with each other, and also many of the cities. Find the Grand Canal on the map and tell what cities



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Fig. 281. — A Chinese orchestra

The sounds made by these players are very different from what we call music. Notice the strange kinds of instruments. What, do you suppose, do people of other countries think of our music?



Fig. 282. — One of the gates through the walls of Peking

Many cities of China have walls similar to the one here shown. This wall is from forty to fifty feet high and about sixty feet thick at the bottom. It is made of clay and plaster faced by brick. It was built to keep out robbers from the desert to the north. Do you think it would keep out an army with heavy cannon?

it connects. Poles, oars, and sails take the place of steam, and traveling is naturally very slow.

Chinese roads are greatly inferior to ours. Most of them are narrow and in bad repair, so that carriages usually cannot pass over them. In northern China, especially in Manchuria and about Peking, there are some good wagon roads over which people travel in two-wheeled covered carts, drawn by donkeys or small horses.

Across the desert of Gobi travel is usually by camel, and it is not unusual to see in the streets of Peking camel trains bearing loads of grain or passengers from Mongolia.

Traveling by wheelbarrow is common over the narrow footpaths of the interior. Pack horses and donkeys are also often used (Fig. 283), especially in mountainous parts of the country.

Travel by automobile is not possible except in the neighborhood of the large cities, where many American machines may be seen.

The river plains of eastern China are more thickly populated than any other region in the world. Indeed, if we do not count the desert and mountain re-

5. Differences in appearance of farms

gions, China is almost as thickly settled as the state of Texas would be if all the people of the United States lived there. It is, therefore, no wonder that the Chinese farms are small. We should hardly call



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Fig. 283. — Traveling by donkey through a Chinese village

them farms at all, for the majority have only about two acres of ground. On this area must be grown all the different things required to support one family. Thus you might see a flooded half-acre of rice, for instance, with beans growing on ridges on the sides, and with perhaps a few mulberry trees on raised ground in one corner.

The methods of farming are also very different from ours. Most of the work is done by hand, with the aid of crude implements. Why can little farm machinery be employed? Some of the land is irrigated and water is pumped or carried from the rivers and canals not only to land of moderate slope, as in the United States, but also from terrace to terrace, to the very tops of the hills.

Chinese children are brought up very differently from children in our country.

Much of the instruction of children is given them by their parents and they are taught very thoroughly to obey and respect their parents and superiors.

Until recently there were no public schools such as we have and only the well-to-do parents could afford to pay tuition for private instruction. Whenever parents were able they sent their boys, and sometimes girls, to some private or mission school, to learn to read and write the simplest Chinese characters.

At the present time China is organizing a good public school system for both boys and girls, and there are many good public elementary schools in the cities. In nearly every city and town there are also excellent mission schools where Chinese children are being educated.

One of the chief reasons for these differences between China and the United

States is found in the religion of the Chinese. They have believed that whatever their ancestors did, they must do. Since their fathers had no railroads, steamboats, or automobiles, they have wanted none themselves. Thus their progress has been checked, and they have been kept from adopting European and American ways of living.

Some of the reasons for these differences



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Fig. 284. — Chinese children of Canton

Another reason why the Chinese have until recently made but little progress has been the lack of education. The Chinese have been unwilling to learn about new things. Until recently they had never traveled much abroad, nor allowed foreigners to visit them. In fact, they have looked down upon foreigners because they represented new customs.

A third reason has been the poor government of China, which was long a monarchy. China's vast area, with many

different groups of people, has made it very difficult to govern. How does it compare in area with the United States? It has at times been difficult to prevent wars between the various provinces.

A few years ago, however, China became a republic, and since that time the government has constantly improved. The Chinese are losing their dislike for new customs and methods of work and are studying those of Europe and America.

1. Tell about the progress of China in

**Review
questions**

early times.

2. How does China resemble the United States in climate and appearance?

3. In farm products?

4. How do the Chinese cities differ from ours?

5. The ways of travel? 6. The farms?

7. State some facts about the education of the children. 8. Locate Peking; Shanghai; Hongkong; Canton; Hankow; the Hwang River; the Yangtze River.

1. Find out about the great wall of China. 2. How can you distinguish a Chinese from other men?

**Suggestions
for extra
work**

3. Why should China have an even greater variety of farm products than the United States?

4. How would you expect the Grand Canal to be of importance to Peking?

5. How might railroads help greatly to prevent the terrible famines that some-

times occur in China? 6. Write a letter about a trip up the Yangtze River. 7. Why are nearly all the important cities of China in its eastern section? 8. Describe the costumes of the Chinese.



Fig. 285. — Japanese girl

Notice the idol. What do you think the girl is doing?

2. The Japanese Empire

The best way to reach Japan from the United States is to take a ship at San Francisco or Seattle and

**How to reach
Japan from
the United
States**

cross the Pacific. If one desires to go directly to the capital and largest city, Tokyo, one travels by steamer from Seattle to Yokohama, the port of Tokyo. This route is the shortest and quickest way to cross the Pacific. On Fig. 315 compare the

length of this trip with that from New York to London. By taking a steamer at San Francisco one can visit the Hawaiian Islands on the way. Trace both routes in Fig. 315.

For more than 200 years before 1854, foreigners were shut out of Japan and the Japanese did not go abroad. They wanted to have nothing to do with other countries.

**Great changes
in Japan in
recent years**

But in that year they began to trade with us, and shortly afterward Japan was opened freely to all foreigners and the Japanese themselves began to go abroad. Since the Japanese have begun to exchange

ideas with other countries, a great change has taken place in Japan. It has adopted many foreign customs, introduced modern machinery, built railroads, and made many improvements.

Even the Japanese government has been changed; it is now patterned very much after that of Germany before the World War. Modern ideas on war have been especially copied by the Japanese, who have taken pride in developing a powerful army and navy. Indeed, the Japanese navy now ranks among the largest in the world.

One of the causes of Japan's desire for military strength is her necessity for new territory on account of her dense population. Because of this need, Japan has added extensively to her territory since 1895. In that year the island of Formosa was obtained from China. Later, after defeating Russia in war, Japan received important rights in Manchuria and later got possession of the large peninsula of Korea, now called Chosen (Fig. 278), just west of the principal island of Japan. Recently it has taken over Germany's claim to the Shantung Peninsula in China and many islands north of the equator in the Pacific. Thus it has gained very important possessions on the continent and in the neighboring ocean regions.

In the great change that has taken place in Japan in recent years, there are many old customs, ways of doing things,

and ways of thinking about things, that the Japanese have not changed. The traveler in Japan will see, therefore, interesting mixtures of the old and the new. Wide differences are noticed in methods of transportation. In the cities electric cars are filled with people as in our own large cities; and at the same time men largely take the place of wagons in carrying heavy burdens. *Rickishas*, drawn by men, take the places of automobiles and carriages.

Interesting mixtures of the old and the new in Japan

At the hotel the visitor notices a sign stating that accommodations are provided both for Japanese and for foreigners,



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Fig. 286. — Threshing rice in Japan

Rice grows on stalks and must be threshed like wheat. The grain is being separated here by pulling the heads of the straw through slits in a piece of metal. Why do these Japanese not have threshing machines as we do in our country?

and he is likely to spend an unpleasant night if he forgets that he is a "foreigner" in Japan. The Japanese have no tables, chairs, or beds, and little other furniture

in their rooms. They sit on mats and sleep on thin mattresses laid on the floor. The houses are small, generally with thatched roofs. The windows, doors and

Yet many families draw the silk from the cocoon by old-fashioned methods, by hand.

Small fields, or *paddies*, of growing rice,



Fig. 287. — Japanese temple

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partitions are usually made of decorated panels or screens.

A visitor finds modern paper factories and cotton mills such as we have; and at the same time thousands of families manufacturing paper by hand in their homes, while spinning and weaving are carried on in many of the households. There are great silk factories; for Japan leads the world in silk production. A large part of all our silk comes from Japan, and Japanese of nearly all classes wear silk garments.

surrounded by irrigation ditches, are to be seen in almost every valley. Rice is the most common food and is often eaten with fish. Until recent years meat and milk, butter and cheese were almost unknown. Dairying is now beginning to be introduced.

1. Describe two routes from the United States to Japan. 2. Why has Japan changed greatly in recent years? 3. What are some of the changes? 4. Why is

there a mixture of the old and the new in Japan? 5.

Review questions Give examples of the old and the new that a visitor in Japan might expect to see.

1. Can you show in Fig. 315 how one might reach

Suggestions for extra work Tokyo by going eastward from the United

States? 2. Make a collection of Japanese articles such as fans, paper napkins, silk, etc. 3. How does Japanese printing differ from ours? 4. Write a composition on Japanese children, describing their clothing, their work, and their play. 5. If you were to dine in a Japanese home, what would you expect to find on the table?

Map questions on Asia 1. Does the mainland of Asia extend farther north than that of North America? 2. In what respects are the Lena and Mackenzie rivers like each other? 3. In what respect do Tibet and Bolivia resemble each other? 4. What oceans bound Asia on three sides? 5. Show that the chief highlands of Europe are an extension westward of those of Asia. 6. What countries



Fig. 288. — A small village in Korea

The Koreans resemble the Chinese in many respects. What do you think the two persons at the stream are doing? Locate Korea.

of Asia are chiefly lowland countries? 7. What countries of Asia are chiefly highland countries? 8. What countries contain large areas of both highlands and lowlands? 9. Locate the Ganges River; the Yangtze River; the Hwang River. 10. Does the latitude of most of the large cities of Asia correspond more closely to that of the large cities of North America or of Europe? 11. Locate the capitals and largest cities of India; China; Japan. Is the capital always the largest city? 12. Name four important peninsulas of Asia. 13. Two important seas. 14. What possession of the United States lies southeast of Asia?

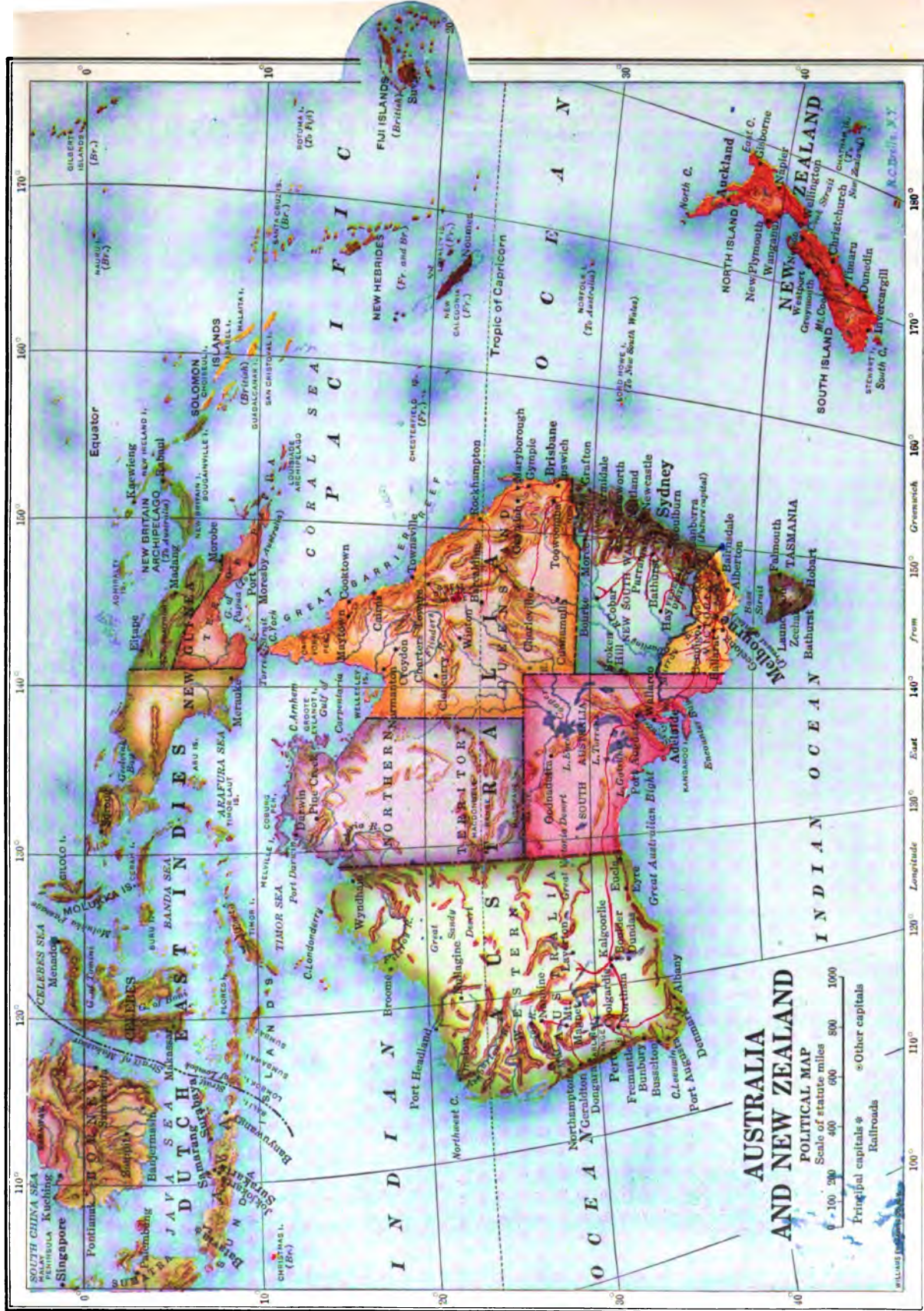


Fig. 290



Fig. 291

PART VI. AUSTRALIA, NEW ZEALAND, AND THE ISLANDS OF THE PACIFIC

I. AUSTRALIA

When the English took possession of Australia over a century ago, they found strange plants, animals, and people there. Many of the plants were unlike those in any other part of the world and were of little use. Giant trees, nearly as large as those of our Western States, were found growing along the eastern coast, and in the forests were great tree ferns. Part of the interior was covered by a low bush having hard, prickly leaves, and often growing so densely that it was difficult to pass through it.

Some reasons why Australia used to be thought of little value

kangaroo, which instead of running on all fours jumps along on its hind legs, using its tail for support as shown in Fig. 293.



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Fig. 293—Kangaroos

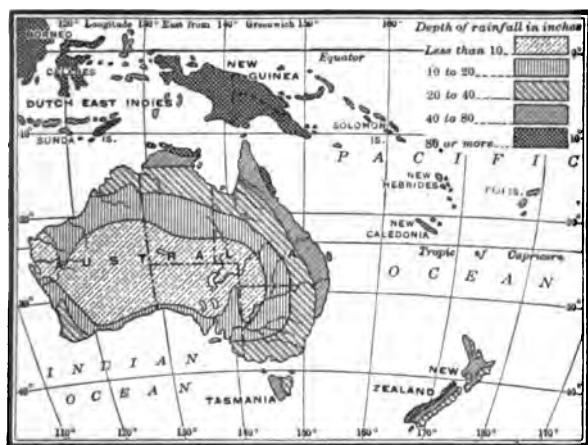


Fig. 292.—Annual rainfall in Australia

None of the domestic animals used to produce food or to carry goods, which are common in other continents, was found there. The largest animal was the

Moreover, the native people were a very low class of savages, whom it was difficult to teach.

Chiefly because of these conditions, Australia seemed to be of little importance. At first it was used by England chiefly as a prison colony, to which criminals were sent. It was a very secure prison, too, for there was little danger that a man sent there would soon reach home again.

As the continent came to be better known, however, people began to go there of their own accord to live. Now Australia has over 5,000,000 inhabitants. Com-

pare its area and population with those of the United States (p. 310). Most of

Where the present population is found and reasons for this distribution

the white inhabitants live in the southern and eastern portions. Let us see why. The temperature is not the chief reason, for that is pleasant enough in a large part of Australia. Prove this by means of the latitude shown on the map (Fig. 289). What portion is in the tropical zone (Fig. 289)?

The great difficulty is the lack of rain, which is due to the location of the mountains and the direction of the winds. The larger part of Australia is a low plateau, with the chief mountain range on the

interior. This causes heavy rainfall on the eastern slopes; but as the winds continue on toward the interior, they become very dry. At a distance of 350 miles from the coast, it is so dry that farming without irrigation is impossible. Still farther west there are extensive deserts.

If you examine Fig. 289 you will see signs of the desert, for some of the rivers flow into lakes that have no outlet. These lakes, therefore, are salty, like the Great Salt Lake of Utah. There is so little rainfall west of the mountain range that the Murray River becomes smaller toward its mouth, and its chief tributary, the Darling, dries up almost entirely in its lower course. Locate these rivers.



Fig. 294. — Tropical foliage in the mountains in the northern part of Australia

Can a similar scene be found in America?

eastern side. Point out these mountains on Fig. 289.

The prevailing winds come from the southeast, so that they must blow over these mountains before reaching the

at home. The climate is like that of our southeastern states, and many of the same crops are grown. Wheat is the largest crop, for it can be grown not only on the eastern slopes of the moun-

When it is remembered that the northern part of Australia has a tropical climate, and that the central and western parts are arid or desert, it is easy to understand why most of the people live in the southeastern part. Most of the good farmland is found there. The chief river, the Murray, is there also, and so are the principal cities. In Fig. 290 name four of the largest.

Since the plentiful rainfall in the southeastern section favors agriculture, the English settlers have imported to this region many of the plants and animals common

tains, but, with the aid of irrigation, on the western slopes also. Along the coast, where the rainfall is greatest, corn, cotton, sugar cane, and tobacco flourish, as well as fruits and vegetables such as

How rainfall has influenced occupations of the people

1. Importance of farming in well-watered portion

are raised in our own country. In Victoria, in the south, there is excellent pasturage, and dairying is an important industry. In the drier region about the mouth of the Murray River there are large vineyards, the grapes being grown for raisins or to make wine. Tropical fruits flourish toward the north, in the torrid zone.

West of the mountain ranges is a vast plain, having too little rainfall for the cultivation of crops but enough to pro-

2. Why sheep and cattle raising is the principal industry

duce good grass. One of the greatest pasture regions in the world lies between these mountains and the deserts in the central and western portions. Vast grasslands stretch for many miles, varied only with scattered trees or patches of bare sand and rock.

Cattle are raised on the western slopes of the mountains, particularly in Queensland, where the warm, moist climate affords good pasturage. Sheep thrive on coarser grass than do cattle, and beyond the cattle ranges, up to the very edge of the deserts, there are great sheep ranches. New South Wales, south of Queensland, has half of the sheep in Australia.

One great difficulty is that what little rain there is comes very irregularly, and droughts often last for long periods, sometimes causing millions of sheep to die of thirst or starvation. Australia has long been known as one of the greatest of



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Fig. 295. — Sorting wool for shipment

Consult Fig. 289 to find the part of Australia in which this picture was probably taken.

sheep countries, and nearly a sixth of all the sheep in the world are raised there.

Australia has become of great value to England as a source of food. Recall some of the reasons why England is very dependent on her colonies for food (p. 208). Wheat has long been one of the chief exports to England. The fast refrigerator ships of the present day have made it possible to send perishable foods all the way to England. Thus a large portion of the frozen beef and mutton consumed in that country comes from Australia. Butter, cheese, and other dairy products are shipped in

Why Australia is now one of the most important parts of the British Empire



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Fig. 296.—Bringing wheat to a railroad station in Australia

Many Australian ranches are fifty or more miles from a railroad. This wheat will probably be shipped from Sydney to Europe.

large quantities, as are also vegetables and fresh fruits.

Important raw materials used in English manufactures also come from Australia. From what you have already read, what

important textile material would you expect Australia to export? Indeed, Australian wool is considered the best in the world. As might be expected, many of the hides used in leather manufacture in England come from that continent.

A large variety of mineral resources has been found since the continent has become better known. There are valuable deposits of silver, copper, tin, coal, and other minerals. Gold is the most valuable mineral, however, and Australia

has become one of the chief gold-producing countries in the world. In Fig. 290 locate Coolgardie, in the western desert, where the most important gold mines are located.

II. NEW ZEALAND

In Fig. 289 locate the two large islands of New Zealand, lying southeast of Australia. Estimate their distance from Australia. If you visited New Zealand you would find that it is a farming country like Australia, and that similar products are raised. But it has a pleasanter climate, for it is cooler and has more rainfall. Therefore, there are no deserts in New Zealand as there are in Australia, and there are fewer obstacles in the way of successful farming.

A visitor would probably enjoy the scenery most, for it is especially fine. The surface of the islands is very rugged, and

there are many lofty mountain peaks. Heavy snows fall upon the higher mountains; from these snow fields large glaciers descend the mountain valleys. The snow-capped mountains and fiords are as beautiful as those of Norway or of the "Inside Passage" along the northwest coast of North America (p. 143).

There are also some remarkable volcanic regions where the ground itself is merely a crust beneath which boil vast quantities of liquid mud. Over this region rise clouds of steam, and there are many hot springs, lakes of boiling water, and geysers more magnificent than those of the Yellowstone Park (p. 134).

Why a visit to New Zealand would be enjoyable

III. THE EAST INDIES

Between Australia and Asia are some very important islands. Most of them are small. Java, however, is about the size of the State of New York, and Borneo is about six times as large. What other large islands do you find in Fig. 290? All these islands together form a group, or *archipelago*, known as the East Indies.

It was these islands, as well as India and the Malay Peninsula, that Columbus was trying to reach when he discovered America (p. 35). He undertook his voyage in order to find a short and easy route by which to bring to Europe the valuable products that had long been coming from the Indies.

The climate and products of these islands resemble those of the West Indies in many ways, although the former have



Photo by Elmendorf © Ewing Galloway

Fig. 297. — A plow used by the natives of Java

Even this crude plow is far better than the wooden plow used in many backward countries.



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Fig. 298. — Mt. Cook, New Zealand

Locate this mountain on Fig. 289. What is its height? Explain the dense tree growth by reference to Fig. 292.

higher temperatures and more moisture. Fig. 292 shows how heavy the rainfall is.

In this tropical region grow extensive forests containing many kinds of valuable woods. Most of the world's supply of rubber comes from this region. Unlike the rubber trees of South America, which are scattered through the forest, (p. 192), those of this region are raised in huge plantations. Thus the rubber can be more easily and cheaply secured. You have probably heard of Java coffee. Tea, indigo, rice, sugar cane, tobacco, cotton, and grain are also important products. Most of the

world's spices used to come from these islands; on that account they were once known as the Spice Islands. They still supply many spices. From the very earliest times, too, they have been noted for their precious stones.

So valuable have been these products that European nations have eagerly taken

possession of this region. England, as usual, has a part. Point it out (Fig. 290). This time, however, she has not obtained the lion's share. That was secured many years ago by the little country of The Netherlands. Name the large islands that are controlled, wholly or in part, by the Dutch.

IV. THE SMALLER ISLANDS OF THE PACIFIC



Fig. 299. — Workers in rubber in the East Indies

The simpler processes in the manufacture of rubber are carried on near the sources of the supply. These natives of Sumatra are drying and folding sheets of crude rubber for shipment.

In Fig. 290 you will see that there are many small islands in the Pacific. Hundreds of others are too small to be shown on the map. Many of the islands are the tops of mountains rising from the bottom of the ocean, while others are merely coral reefs. Although most of them lie in the tropics, they are too small to be of great value,

The great number of islands in the Pacific, and their little value

and little is heard of them. In addition to the Hawaiian Islands, several other islands in the Pacific are possessions of the United States. Give their names and locate them on the map (Fig. 315). These islands are used mainly as coaling stations on the voyage across the Pacific.

One of the largest islands is New Guinea, just north of Australia, which is not usually classed as one of the East Indies. Among what three nations is it divided? Fierce savages inhabit its forests, and very few Europeans live there.

Among the smaller groups are the Fiji Islands. Find these. To what country do they belong? What two groups lie west of the Fiji Islands?

1. Why was Australia formerly thought to be of little value? 2. Why is most of the population in the south-eastern portion? 3. Why is grazing the principal industry of Australia? 4. What are the chief differences

Review questions

between New Zealand and Australia? 5. What are the chief islands of the East Indies? 6. What are their chief products?

1. How could you reach Australia from where you live? 2. If you were to go to an

Suggestions for extra work Australian city to live, would you expect to find a strange language and strange customs? Why? 3. What other countries besides Australia are especially noted for cattle and sheep? 4. Read about the trouble caused by rabbits that were imported to that continent. 5. Find out about some of the peculiar native plants and animals. 6. Find what

spices are used in cooking at your home. 7. Find out about the eucalyptus tree, which has been transplanted to California. 8. Write the life history of the rubber in a comb or an eraser.

1. Australia is in the same latitude as what part of South America? 2. Of Africa? 3. What uninhabited continent is about the size of Australia? 4. Australia is opposite what part of the world? Answer this question by the use of a globe. 5.

Map questions on Australasia

What provinces of Australia are chiefly lowlands? 6. Which province contains many large lakes? 7. What tropical island lies north of Australia? 8. Compare distance between Australia and New Zealand with that between New York and Liverpool.

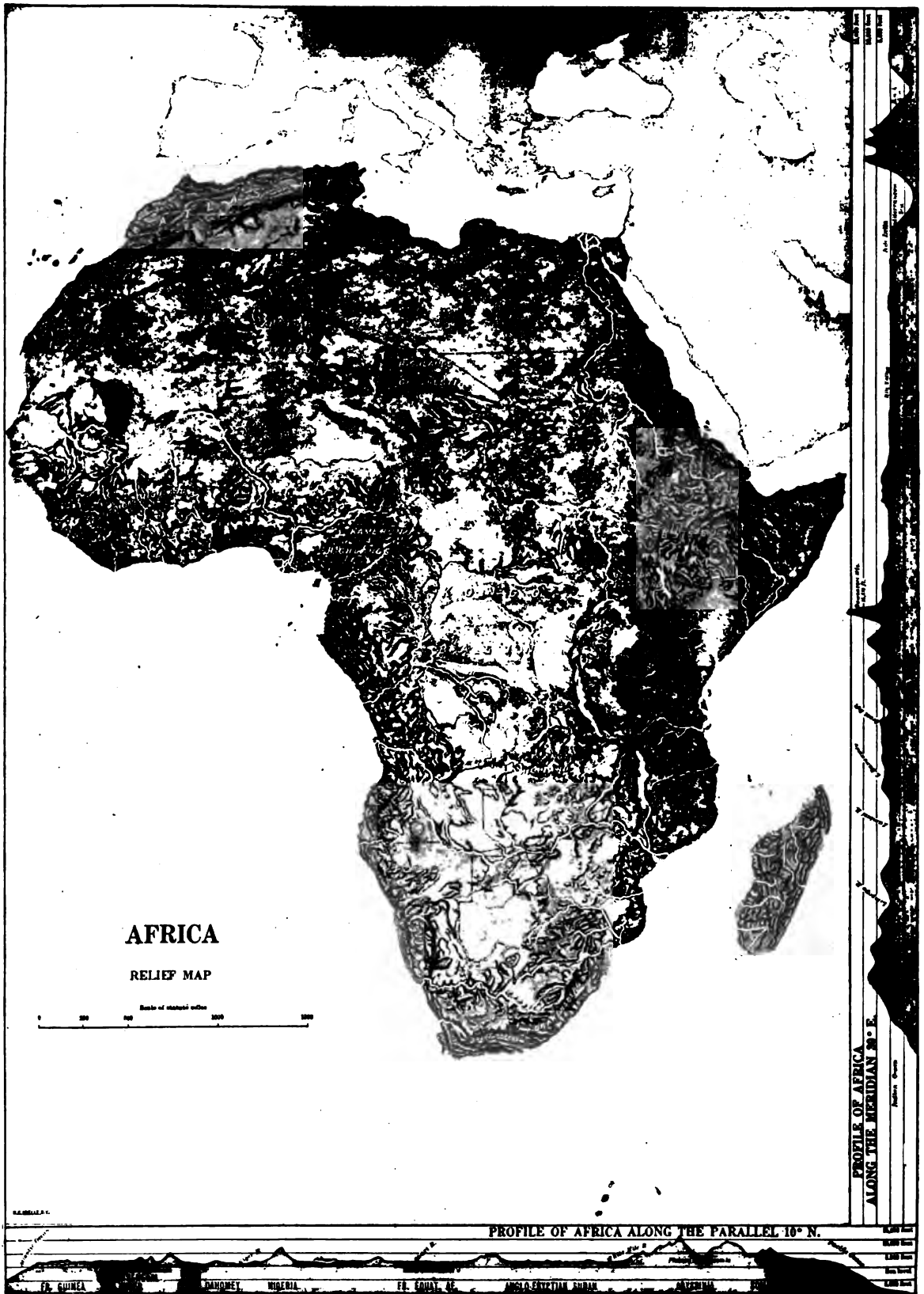


Fig. 300

PART VII. AFRICA

Probably one reason why Africa is called the "dark continent" is the fact that it is the home of the black man. The first negro slaves brought to North America came from that continent.

Why Africa is called the Dark Continent

Another reason is that until recently we have known little about it. It is one of the oldest continents that history tells us about, and it lies so near Europe that the two almost join at the Strait of Gibraltar; yet it is the least known of all the larger continents.

There are several reasons why so little has been known

Why so little has been known about Africa

1. How the desert has checked travel

about Africa. In the first place, there is a vast desert south of the Mediterranean Sea (Fig.

302). It extends east and west across the continent from the Atlantic Ocean to the Red Sea; and from north to south it is more than 1,000 miles wide.

This vast region, most of which is called the Sahara Desert (Fig. 302), is very difficult to cross. It has no roads or railways, and the only way to travel over it is on camels. The watering places, or *oases*, are usually many miles apart, so that both camels and men

may perish from thirst. Frightful sandstorms sometimes arise, continuing for hours and even days; in these the sand is drifted about by the winds, filling the air and sometimes even burying the caravans. If these perils are escaped, there is still the danger of attack from the fierce nomads who live in the desert and who rob the caravans, often showing no mercy to travelers.



Fig. 301.—The Great Pyramid and the Sphinx

The pyramids were built thousands of years ago for use as tombs of the royal families of Egypt. What indications do you see that this is a desert region?

It is not strange, therefore, that Europeans have failed to become well acquainted with Africa by entering it from the north.



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Fig. 304. — Along the Nile River in Egypt

Two of the pyramids may be seen in the distance. The palm trees indicate a warm climate. The camel driver is waiting for tourists, many of whom visit Egypt.

One might expect the large rivers to offer a good means of reaching the interior. Trace the Nile in Egypt (Fig. 302); the Niger and Kongo on the west coast of Africa; and the Zambezi in the south. Notice how far these rivers extend into the continent. If they could be navigated far up toward their sources, as our Hudson and Mississippi rivers are, they would make excellent highways to the interior; but this cannot be done, for all of them have rapids and falls in their lower courses.

The reason for these falls is that the interior of Africa, like that of both Mexico and Spain (Figs. 58 and 247), is mainly a plateau, whose elevation is from a quarter to a half a mile above the level of the sea (Fig. 302). In descending from this plateau, the rivers tumble in cataracts and falls.

One of the largest waterfalls is Victoria Falls in the upper Zambezi River (Fig. 302). The Nile also has several rapids and cataracts; and there is a great cataract in the Kongo. Thus the rivers have been of little use for exploring the continent.

A third reason why we know so little about Africa is its unhealthy climate.

3. The danger of the climate to foreigners

Notice where the equator crosses the continent. From this you see that most of Africa is in the tropical zone, and that only the northern and southern parts are in the temperate zones. Does it extend into the frigid zone?



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Fig. 305. — Railway bridge over the Zambezi River
This picture reminds one of the Niagara Falls.

2. Why the rivers have not favored exploration

In this tropical region the low coast lands have too hot and damp a climate for white men. There is much malaria, as well as other diseases that thrive in a hot, damp climate. Generally, therefore, Europeans can live with comfort and safety only upon the high land of the interior. This fact has helped to keep foreigners out of Africa; for settlements in new countries are usually first made along the coast. In Africa, it is dangerous even to cross the narrow strip of coastland to reach the highlands.

A part of central Africa, where the rainfall is very heavy (Fig. 307), is covered with a dense forest like that in the Amazon Basin. This forest

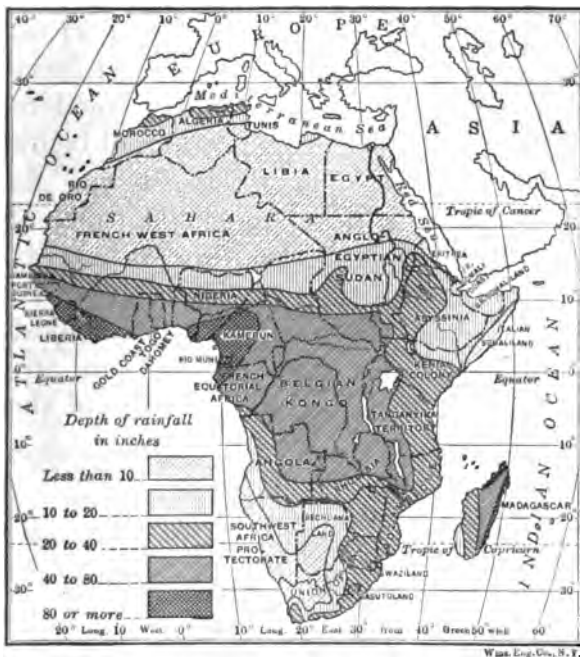


Fig. 307. — Annual rainfall in Africa



Fig. 306. — Interior of the old palace of the rulers of Morocco

This reminds one strongly of the interior of the Alhambra (Fig. 249) Both were occupied by the Moors.

extends north and south for a full thousand miles, and is very difficult to cross.

There are many wild animals in the forest and on the open plains to the north and south of it. Among these are the lion, elephant, rhinoceros, hippopotamus, and giraffe, as well as many snakes. Some of these animals, like the lion, are very fierce and dangerous.

4. The effect of native life on exploration

Another difficulty comes from the great numbers of savage black men, or negroes, many of whom are dangerous to meet. For centuries the negroes have been seized and carried away as slaves to various parts of the world. Even today the Arabs seize many of them for that purpose. Such treatment has not helped to make them friendly to white men.

If you traveled along the Mediterranean coast from Morocco to Tripoli (Fig. 303) you would see some very different

sights from those in the European countries on the Mediterranean. These

What one would see by traveling overland along the Mediterranean coast from Morocco to Tripoli

cities have a strange appearance with their white, flat-topped Moorish buildings (Fig. 306) and the domes of *mosques*, or churches, rising above them. You would soon find, however, that more of

them are poorly built and that there is more dirt than in the European cities on

having scarcely improved in the last 2,000 years. In the interior, on the southern slopes of the Atlas Mountains, the country becomes drier, and herding is the chief occupation. On the southern border of these countries is the Sahara. There, in some of the towns, you would see caravans starting for oases far out in the desert.

These people are so backward partly because their Mohammedan religion

teaches that everything should be done as their fathers did it before them. Hence they have opposed changes. For a long time it was even dangerous for foreigners to travel here. Within recent years, however, France and Italy have taken control of these countries, and they are gradually improving conditions. At Algiers (Fig. 247), the most important seaport on this coast, the French have built an entirely modern city along the harbor below the old Moorish town. As shown by Fig. 303, which of these countries belong to France? To Italy? To



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Fig. 308. — The temple of Karnak, in Egypt

Modern workmen are shown here repairing this very ancient temple to keep it from further decay. Note, on the right, carving by ancient artists. The signs in the upper right-hand corner are ancient Egyptian writing.

the Mediterranean coast. In the bazaar or market place you would meet Moors, Arabs, Berbers, Hebrews, negroes, and some Europeans. Many of the people are poor and ignorant.

Much the same crops are raised along this coast as on the north shore of the Mediterranean; you would see wheat, olives, figs, dates, and other fruits. But the methods of farming are very different,

Spain? Are they important as colonies?

More tourists visit Egypt than any other part of Africa, for it is one of the oldest and most interesting countries of the world. Civilized people lived there thousands of years before the time of Christ (Fig. 308). This is the country, the Bible tells us, where Moses once lived, and Joseph also. What

Why a trip up the Nile is popular

1. Interesting sights one would see

stories from the Bible do you remember about their stay in Egypt?

Travelers usually land at Alexandria, the chief seaport of the country. In Fig. 303 note its location in the delta of the Nile River. Traveling inland across this delta, you would see a great deal of farming country. When Joseph lived there, Egypt was a store-house for grains; and wheat, corn, and millet are still extensively raised (Fig. 309). The climate is so warm that crops like those of our Southern States can be produced, and you would see much rice, sugar cane, and especially cotton. There are many vineyards, and groves of oranges, lemons, figs, and dates. Grazing is also important, herds of water-buffalo and camels, as well as cattle, sheep, and goats, being common.

At the head of the delta is Cairo (Fig. 303), the capital of Egypt and the largest city in Africa. There you would see the palace of the Sultan, several mosques, and a museum containing many Egyptian works of art. Perhaps nowhere else in the world would you find so many races or hear so many strange languages. Three Sabbaths are observed each week by these different religions: Friday by the Mohammedans, Saturday by the Jews, and Sunday by the Christians.

Probably you would most enjoy taking a camel ride south of Cairo to visit some of the most interesting ruins of ancient

Egypt. Here are the immense pyramids and the Sphinx, with the head of a woman and the body of a lion (Fig. 301). With much effort you can climb step by step up the great stone blocks of which the pyramids are built. These are the tombs of ancient kings; in them have been found the bodies of the dead rulers, preserved in a peculiar way. A number of these *mummies* have been brought to museums in some of our large cities,



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Fig. 309. — Grain boats on the Nile, near Cairo

There is much traffic on the lower portion of the Nile. How far from the mouth are the first rapids (Fig. 302)? How many rapids are there? The camels have come from an oasis in the desert with dates to be exchanged for some of the grain that is grown along the banks of the Nile.

where they may be seen by anyone.

This rich farming country lies in the midst of the desert and receives rain only four or five times in a year.

The fact that it is, nevertheless, so productive is due to the Nile River; indeed with-

out the Nile Egypt itself would be a desert like the country which surrounds it. Trace the course of the Nile in Fig. 302.

2. Why this portion of the desert is prosperous

Its source lies near the equator in a region of such heavy rainfall that every year floods cause the river to overflow its banks. The water, carrying a large quantity of sediment, has built up the fertile flood plains on either side of the river and



Fig. 310. — Standard Bank of South Africa, Cape Town

also the broad delta at its mouth. The annual floods spread over these plains, each overflow leaving a layer of rich mud, and at the same time providing the water necessary for crops. In this way, for thousands of years, millions of people have been supported in the midst of the desert.

At the opposite end of the continent from Egypt lies an even more prosperous region. This is the Union of South Africa, which would probably seem less strange to you than any other part of Africa you might visit. It is a part of the British Empire, and large numbers of Europeans, principally English and Dutch, live there. The cities are in most ways as modern as our own. You might be surprised to find that in Cape Town, at the southernmost tip of Africa, there are electric lights, street-cars, fine buildings

Why South Africa is so attractive to Europeans

(Fig. 310), and many of the other conveniences common in our cities.

One of the reasons why so many Europeans live there is that the climate is suitable for the white man. What does the latitude tell you about the climate? Compare it with that of Egypt.

This is a rich farming country. Besides fields of grain, you would see many fruit orchards. A peculiar industry there



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Fig. 311. — A South African gold mine

Johannesburg is in the heart of the richest gold-producing region in the world. Gold-bearing rock is brought to the surface and crushed to secure the gold. A great hill of the crushed rock may be seen on the right in the background.

is the raising of ostriches; you would enjoy visiting a farm where these largest of birds are raised in great numbers for the valuable feathers on their wings and tails. How have you seen ostrich feathers used?

Another reason why South Africa has attracted so many Europeans is its great mineral wealth. Johannesburg is the center of the gold mining (Fig. 311). The district near it produces more than a third of the gold of the world and nearly twice the amount produced by the United States. At Kimberley (Fig. 303) is one of the greatest diamond mines in the world. There you would see native workers digging out the decayed rock from old volcanoes and washing it to find the precious stones.

In the past travelers in northern Africa seldom ventured into the interior, because

The plan of the Cape-to-Cairo Railroad

1. Why such a railroad has long been desired

almost the only way of getting there was by the long and difficult caravan route across the Sahara. During the last fifty years, since European nations have taken control of a large part of Africa, there has been greater need than ever before for a railroad to make travel possible through the interior and to carry products from central Africa to seaports in the north and south. One of the great plans for developing the continent is the Cape-to-Cairo Railroad (Fig. 312), which will make it possible to travel overland from one end of the continent all the way to the other. In Fig. 303 trace this route from Cairo in Egypt to Cape Town in southern Africa. Estimate the distance. Note also that the greater

part of the lines has already been completed by the British, through Egypt, which they partly control, and through their colonies of South Africa. What portion remains to be built? The greatness of the undertaking is shown by the fact that the completed line will be about twice as long as one of our transcontinental lines from New York to San Francisco, and it is estimated that it will take about ten days to travel from one end to the other. How long does it take to cross our continent?

If you were to make the trip by this route when it is completed, you would



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Fig. 312. — The Cape-to-Cairo Railway

This is where the line crosses the Zambezi River. Compare this picture with Fig. 305.

leave the desert at some distance south of Egypt and pass into the grasslands of the Sudan. In Fig. 303 trace the extent of the Sudan. There rain falls during one season of the year, while the other season

2. What one might see on this route

is dry. This prevents the growth of trees except along the rivers, for they cannot live through the dry season. Grass, however, grows luxuriantly, and herding is the chief occupation of the negro inhabitants. Do you imagine these herders have as pleasant a life as the herders in Switzerland (p. 223)? Give the reason for your answer.



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Fig. 313. — A view of Zanzibar

Zanzibar is on an island of the same name and is one of the principal seaports of the eastern coast.

South of the Sudan the train would climb up into the forest-covered highlands. Although you would be traveling through the tropics, the altitude is so high that the temperature is very comfortable, and you would see mountain peaks covered with snow.

As you crossed the plateau of Rhodesia, you would pass through grasslands much like those of the Sudan. There the cool, dry season is followed by a warm, rainy season like our spring. This climate is

very comfortable for the white man to live in, and many Dutch and English have settled here. Ranching is the principal occupation; there are large herds of cattle and sheep.

In southern Rhodesia you would cross the Zambezi River near Victoria Falls. This wonderful waterfall is even larger than Niagara, and is one of the grandest in the world.

Coming down from the highlands you would pass into South Africa. From what has been said, what would you be likely to see on the remainder of the trip? In Fig. 302 trace the course of the Kongo River, the chief highway of central Africa. Where does the equator cross it? How does its latitude compare with that of the Amazon (Fig. 174)? How does its length compare with that of the Amazon? The number of tributaries?

How a trip
up the Kongo
would differ
from one up
the Amazon

From these facts you might expect a trip up the Kongo to be much like one up the Amazon. Recall some of the experiences of the latter trip (p. 190). In traveling up the Kongo, however, you would be reminded of the Amazon only in the lower portion, where the Kongo passes through the hot, damp coastal plain. A little over 100 miles inland numerous falls in the river lead up to Leopoldville. From there on, traveling would be more comfortable; for on the plateau the temperature is lower and the rainfall less. Although falls frequently obstruct navigation, railroads have been built around many of them, and you could travel easily either by water or rail over most of the basin of the Kongo and its tributaries.

Much of the time the way leads through

forests, but the lighter rainfall on the plateau makes them less dense than the Amazon jungle; and frequently you would see areas of *savannahs*, or grasslands. The products of the Kongo are, therefore, more easily obtained than those of the Amazon, although they are practically the same. Recall the important products of the Amazon Basin. In addition, ivory, from the tusks of the elephant, is of great importance in the Kongo.

The Kongo has a greater variety of animal life; the buffalo, elephant, and leopard live on the plains; and the roar of the lion is frequently heard.

Although the tropical plateau of the Kongo is too unhealthful for the white man, the natives prosper there. Along the river banks you would see many native villages, with their clusters of huts made of straw or some similar material. Since land is easier to clear here than in the Amazon Basin, the villages are surrounded by gardens and fields where potatoes, corn, sugar cane, cotton, and rice are grown. Only a small portion of the land is tilled at present, but nearly the entire basin, an area about equal to a third of the United States, could be cultivated. How does it compare in this respect with the Amazon Basin?

1. Why has Africa been called the Dark Continent? 2. How has the desert made travel difficult? 3. Why has navigation on the rivers been difficult? 4. Why

is the climate of large parts of Africa unhealthful? 5. How have the natives hindered exploration? 6. Describe some of the sights to be seen in northwestern Africa. 7. Why does the prosperity of Egypt depend upon the Nile? 8. In what ways does South Africa remind one of our own country? 9. What are some of its chief products? 10. Why is a Cape-to-Cairo

Review
questions



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Fig. 314. — Half-civilized negroes in the Belgian Kongo

railroad needed? 11. Describe some of the scenes along this route. 12. Compare the Kongo and the Amazon basins.

1. How do you explain the fact that the Egyptians have made such greater advances than the other peoples of northern Africa? 2. Why should Cairo be the largest city in the continent? 3. Read the story of Joseph in the Bible beginning in *Genesis*, Chapter 37. 4. Read about the Dutch settlements in South Africa. 5. Write an account of a visit to an oasis in the Sahara. 6. Make a collection of pictures of scenes in Egypt.

Suggestions
for extra
work

7. To what European countries do the different countries of Africa belong? 8. Find out some interesting facts about the diamond mines at Kimberley.

1. Show that Africa has a more regular coast line than any other continent. 2. What two seas lie along the northern and northeastern coasts of Africa? 3. What large island lies east of Africa? Compare its area with that of one of

our states. 4. What countries of Africa consist chiefly of highlands? 5. Of lowlands? 6. Trace the courses of all rivers mentioned in the text. 7. Compare the area of Lake Victoria Nyanza with that of Lake Michigan. 8. Compare the area of the Belgian Kongo with that of the United States. 9. The northernmost cities of Africa are in about the same latitude as what city in the United States?

**Map
questions
on Africa**

PART VIII. THE UNITED STATES IN RELATION TO OTHER COUNTRIES

There are more than twenty separate countries in North and South America,

of which Canada and Brazil are the largest in-area. All of them together, however, have a smaller population than the United States alone. From figures in the Appendix, find out how much smaller it is (pp. 310 and 311).

Our products from farms, mines, and factories far surpass such products from all these other countries together, and we have fully twice as many miles of railroad as they have. The United States is, therefore, by far the leading country in the New World.

There are many reasons for this rank, but only two of them can be mentioned here. They are the climate and the character of our people. Can you show how we have a great advantage over most of the others in climate? What countries of South America are most like the United States in that respect? Has Canada the advantage over our country in climate? Has Mexico?

Climate has a great influence on the character of people. Can you show how that is true in the New World? What two countries in North America have the most intelligent and energetic inhabitants? What proofs can you give of that fact? What can you tell about the education of the people in South America (p. 178)?

Although the United States is much greater in population than the other nations of the New World, it is by no means independent of them. Its trade with them is one of the things that makes it great.

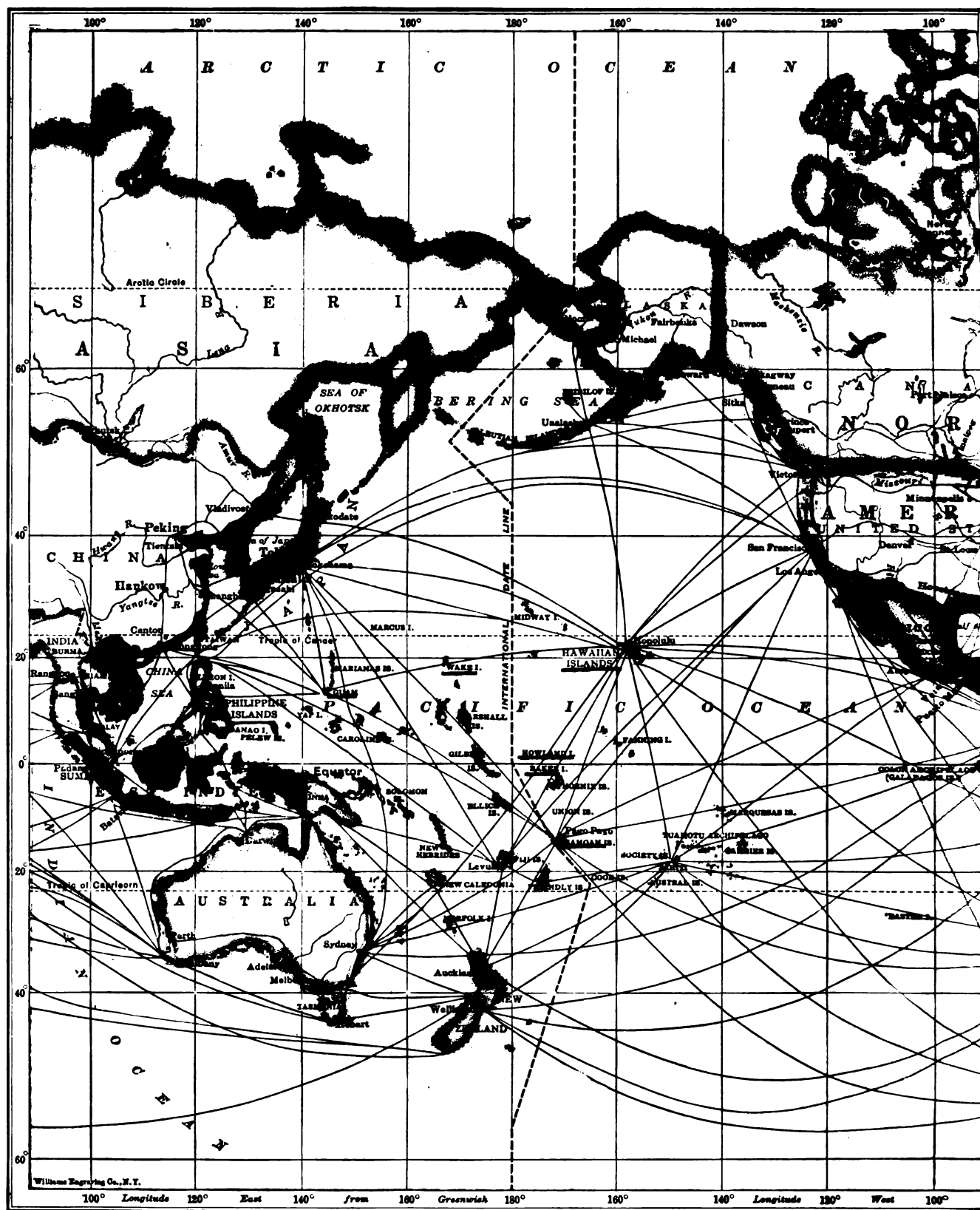
Our dependence upon other countries of the New World

The New World country on which its prosperity most depends is Canada. When you consider the population of Canada, is this surprising or not? The fact is that our trade with this neighbor is greater than that with all Latin America, which includes all the countries in North and South America from United States southward.

1. What we buy from Canada and what we sell to her

When you recall what Canada produces, you can suggest some of the things that we buy from her. Wheat, flour, oats, bacon, and cheese are her most important agricultural products; but the British Isles take far more of such things than we do. Can you tell why (p. 207)? We do, however, take some of them, and we buy great quantities of wood, wood pulp, and paper.

On the other hand, we sell to Canada far more goods than we buy, in some years twice as many. The most important articles are iron and steel goods, coal, and woolen and cotton textiles. Can you explain why Canada chooses these things especially (p. 159)? The principal port



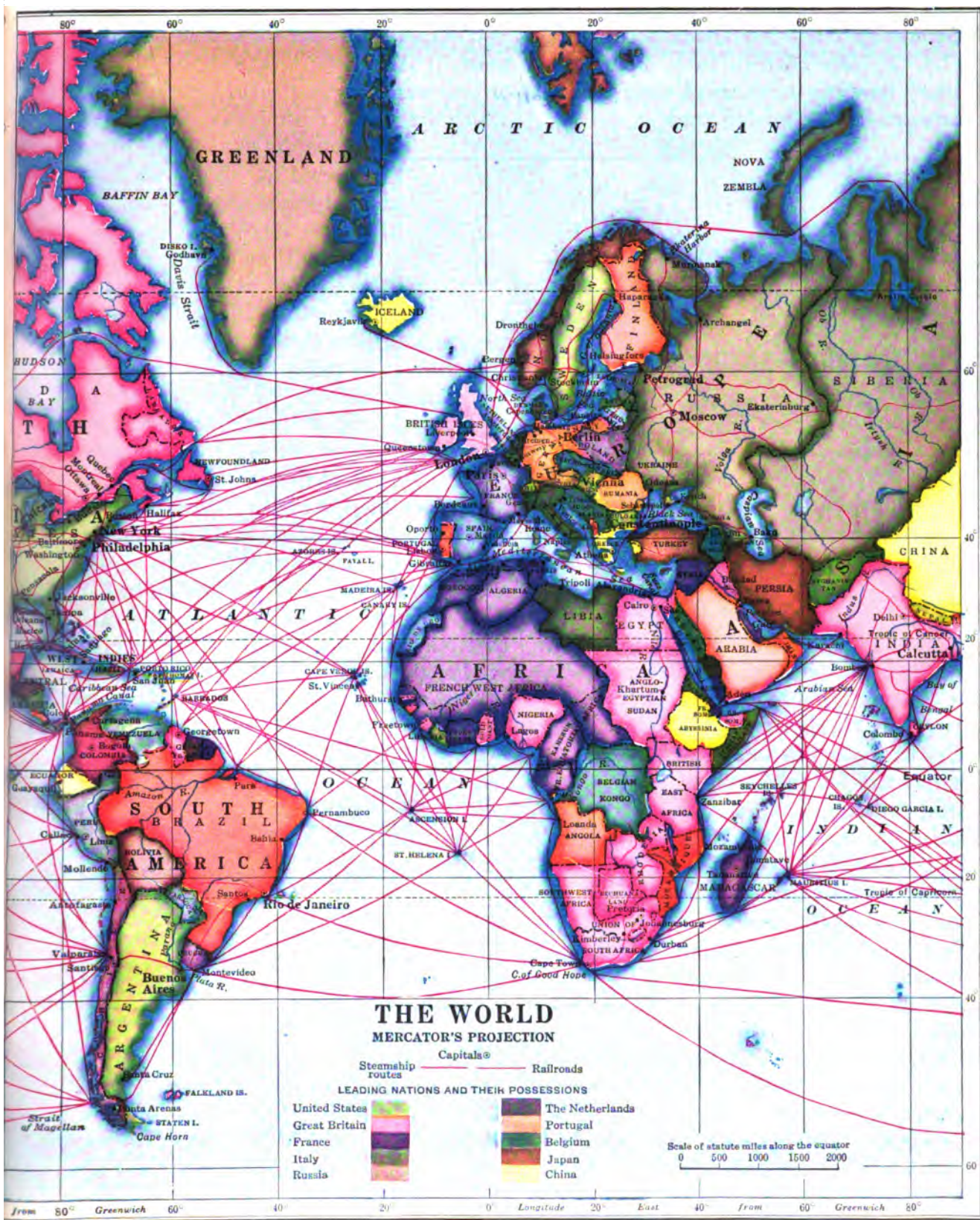


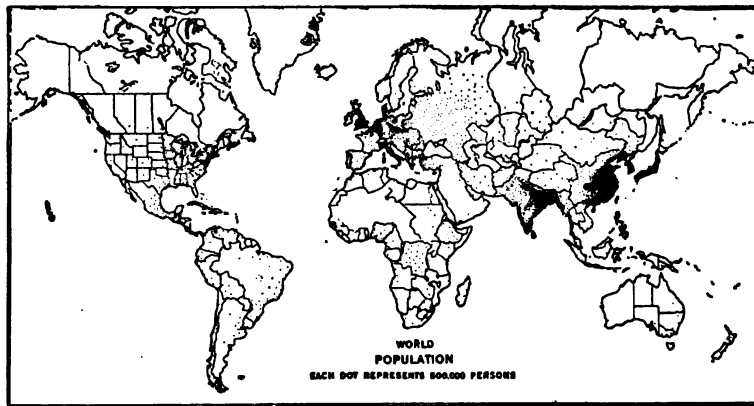
Fig. 315

for foreign trade in Canada is Montreal, and the one next in rank is Toronto. Show how the location of each gives it advantages for foreign trade.

you expect us to sell them many woolen goods? Why?

The countries in South America with which we trade most lie mainly in the

temperate zone. Name those referred to. While we raise a large quantity of wool, we import more than one half of what we consume; and much of it comes from Argentina and Chile. We also obtain a great number of hides there, and a large amount of fertilizer from one of them. On the other hand, we sell to them farm implements, cotton goods,



From The Geography of the World's Agriculture (1914)

Fig. 316

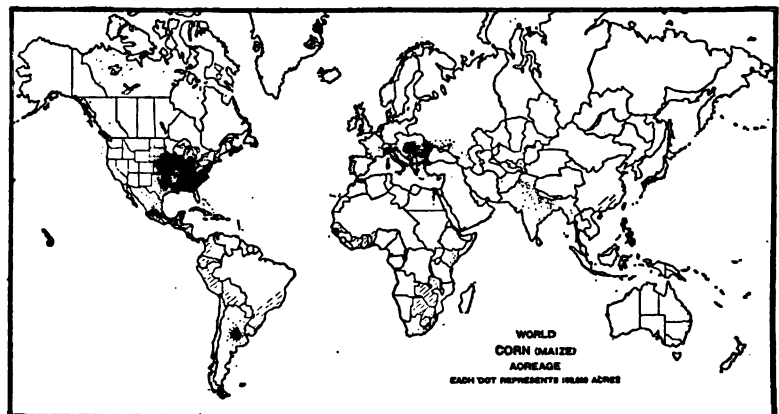
So much of the land south of us lies in the tropical zone that many of the products are different from any that we can raise. Note the boundaries of that zone as shown in Fig. 46. What are the names of the boundary lines of this zone?

2. Our trade with Latin America

and other manufactures. What conditions in those countries favor the export and import of such articles? What cities are their principal ports for foreign trade? What reasons can you give for the fact that our trade with all South America is smaller than that with Canada?

We want many of these tropical articles very much. For example, our breakfast tables call for coffee, sugar, and bananas. Can you point out on Fig. 315 some of the countries from which these common articles may be obtained? Some of our rubber comes from South America and much of our binding twine from tropical North America.

Can you name the countries that are noted for these (pp. 147 and 165)? In return for such purchases, we sell to these hot countries such manufactures as cotton goods, machinery, and foodstuffs. Would



From The Geography of the World's Agriculture (1914)

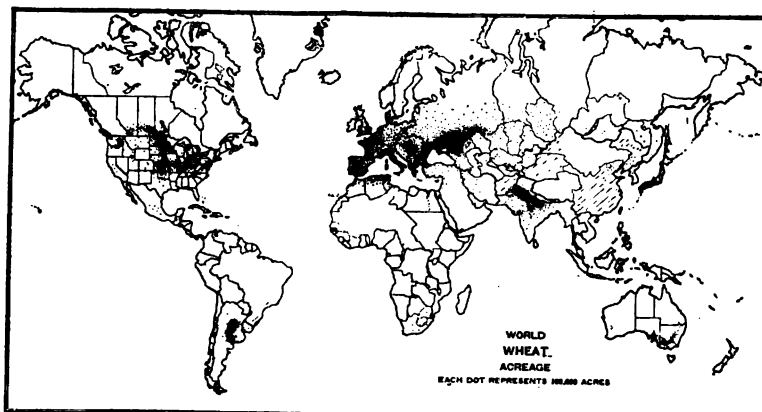
Fig. 317

The country to the south of us with which we have most trade is Cuba. About eighty pounds of sugar per person are consumed each year in the United States, only about half of which is produced by

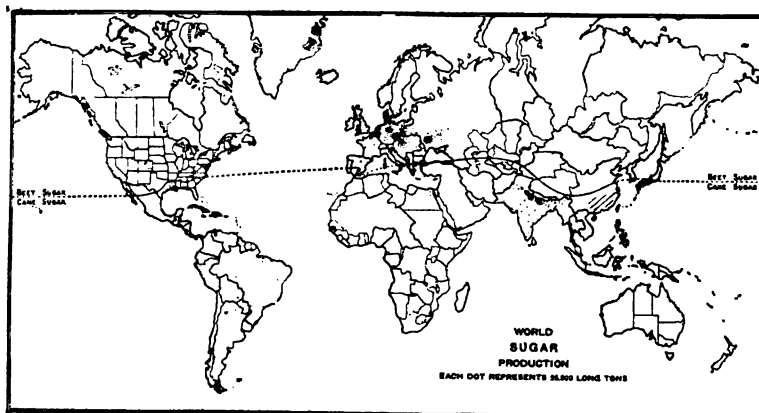
us and our possessions. A larger amount is imported from Cuba than from any other country. What other important products are imported from that island (p. 169)? In 1918 our commerce with Cuba was double that with Mexico. How can you explain that fact? What is the principal port of Cuba?

The area and population of Africa suggest that our trade might be much greater with that continent than with South America. How our trade with Africa and Australia compares with that with South America. Show that that suggestion is true.

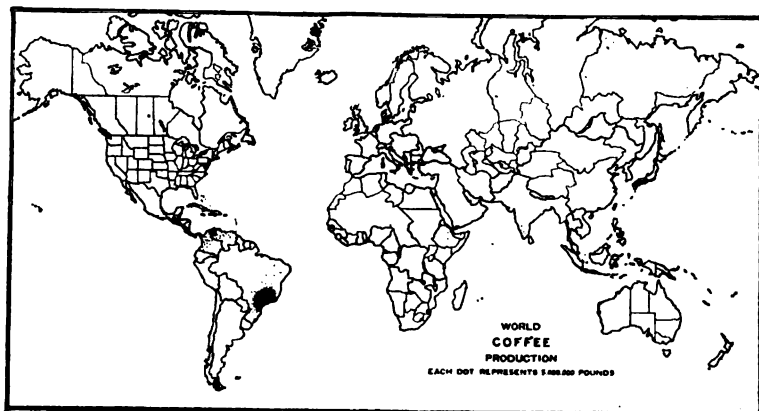
The parts of Africa with which we have most trade are the Union of South Africa and Egypt. How does their latitude suggest an important advantage for them (Fig. 315)? Which of the products of South Africa would you expect us to import (p. 298)? Through what port would they be shipped? Why would you not expect wheat to be sent from Egypt to us? It is different, however, with cotton. While we raise more of that fiber than any other country, the Egyptian cotton is an especially valuable kind, and we import a large amount of it every year. What other products of Egypt would you ex-



From *The Geography of the World's Agriculture* (1914)
Fig. 318



From *The Geography of the World's Agriculture* (1914)
Fig. 319



From *The Geography of the World's Agriculture* (1914)
Fig. 320

pect us to import? Through what port of that country?

Compare Australia with Africa in area and population. Australia has two prod-

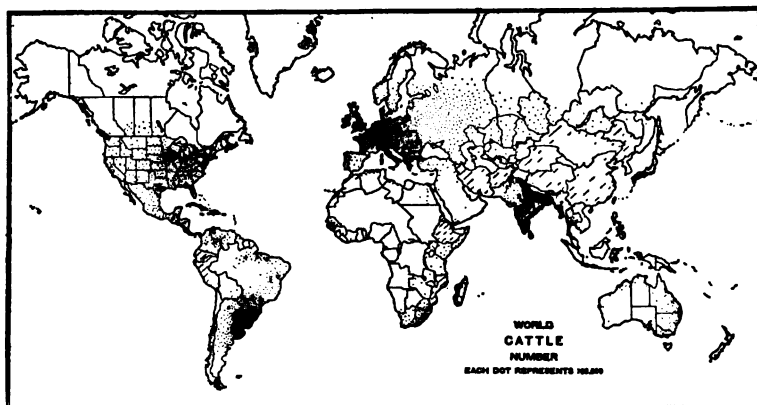


Fig. 321

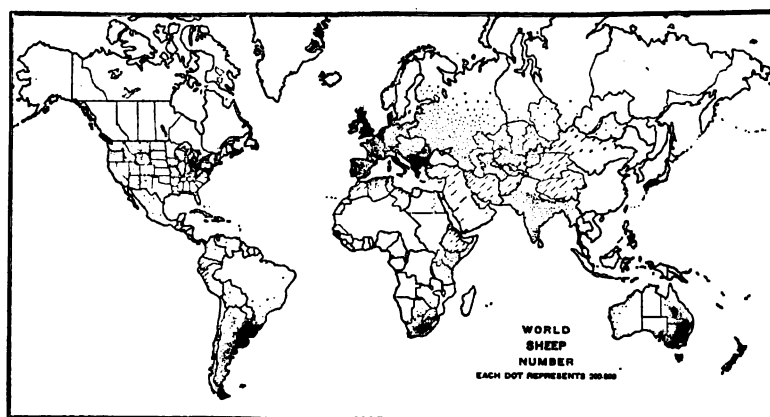


Fig. 322

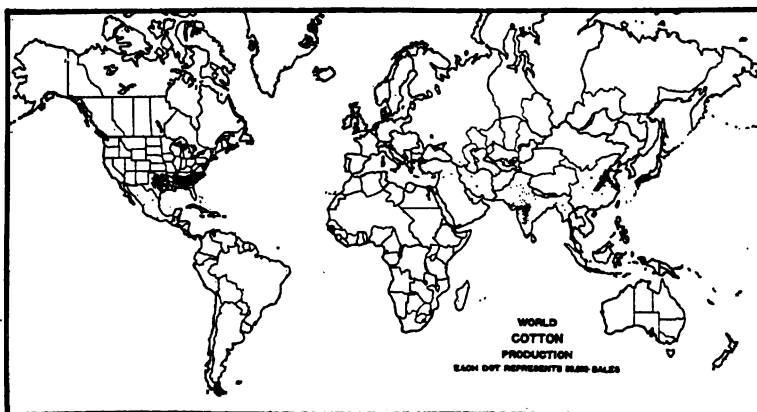


Fig. 323

with the United States is nearly as great as that of Africa; but the two together had only about one fourth as much trade with the United States in 1918 as South America alone. Why would you expect largely the same kinds of goods to be exported by the United States to those two continents as to South America? Mention some of the more important articles.

The most common articles that reach us from Asia and the islands near it are tea and coffee, spices, silk, rice, and rubber. Mention some of those that come from the Philippines (p. 147).

Our trade with Asia and the islands near it

The country of Asia with which we have most trade is Japan. The greater part of the tea produced in the island of Formosa is sent to us. Can you name other Japanese articles that you have seen? Japan sells more of her products to us than to any other country, although she buys more from some of the others. Name two Japanese ports from which goods would be likely to be

products that we greatly need for clothing. Can you name them (p. 285)? From what ports would you expect them to be shipped? The commerce of Australia

shipped. In what American ports would you expect such goods to arrive?

The trade of China with us is only a small part of that of Japan with us. Can

you suggest any reasons for this? How do the two countries compare in area and population?

India ranks next to Japan in trade with the United States. From the list of Indian products named on p. 267, which would you expect to be sent to us in considerable quantities?

Although we have more commerce with Asia than with South America, or with Africa and Australia, it only about equals that with Canada. What reasons, if any, do you see for surprise in that fact? What are some of the conditions that hinder our trade with Asia?

Our commerce with the countries of Europe is about equal to that with all the other countries in the world.

There are two reasons for this. Because the Europeans manufacture far more kinds of articles than other peoples, they have far more things that we want. For example, we get linen mainly from them; laces as well; much of our cloth; some of our watches and clocks; many of our drugs; also, raw silk, china-ware, hardware, works of art, toys, and hundreds of other articles. See how long a list of things you can make that we import from Europe.

On the other hand, on account of their dense population they welcome great quantities of food from us. Can you

name one country in particular that must import much food (p. 207)? Also, their extensive manufacturing calls for many of our raw materials. We send them nearly one fourth of all the wheat that we raise, a large amount of meat, and a vast quantity of cotton. We could spare much corn, too; but they do not want that. They have never learned to eat corn, just as we have not learned to use rice to the extent that the Chinese and Japanese do. Although corn is our most valuable crop, we usually export less than two bushels out of every hundred.

The European country with which we have most extensive dealings is the United Kingdom of Great Britain and Ireland. France comes next.

In Fig. 315 you can see the principal routes that goods and people take across the oceans. What course would freight bound from Chicago to Yokohama be likely to take? From New York to Yokohama? From our Southern States to India? By what course would you expect sugar from Manila or rice from China to reach Chicago? What are the leading ports on the west side of the Atlantic Ocean? On the east side? On the shores of the Indian Ocean? On the east coast of the Pacific Ocean? On its west coast?

Leading
routes for
trade and
travel

APPENDIX

TABLES OF AREA, POPULATION, ETC.

THE EARTH

Land area (square miles)	56,255,000	Length of Axis (miles)	7,900
Water area (square miles)	140,205,000	Length of the equator (miles)	24,900

CONTINENTS AND PRINCIPAL COUNTRIES

	Area in Square Miles	Population		Area in Square Miles	Population		Area in Square Miles	Population
North America	9,455,700	145,000,000	Europe	3,900,000	455,000,000	Africa	11,600,000	142,000,000
Alaska.....	590,900	55,000	Albania.....	11,000	825,000	<i>Belgian Sphere of Influence</i>		
Canada.....	3,789,400	8,428,000	Austria.....	32,100	6,412,000	Belgian Kongo..	929,000	15,500,000
Alberta.....	255,300	407,000	Belgium.....	11,800	7,762,000	<i>British Sphere of Influence</i>		
British Columbia	395,600	400,000	British Isles.....	121,700	45,475,000	Sudan.....	1,014,000	3,400,000
Manitoba.....	251,800	554,000	Great Britain.....	88,800	40,936,000	British East Africa.	723,300	13,837,000
New Brunswick..	28,000	352,000	England.....	50,900	34,015,000	Egypt.....	350,000	12,751,000
Nova Scotia.....	21,400	492,000	Wales.....	7,500	2,025,000	Kamerun (Brit- ish and French).....	191,100	2,540,000
Ontario.....	407,300	2,799,000	Scotland.....	30,400	4,868,000	Rhodesia.....	440,000	1,699,000
Prince Edward Island.....	2,200	94,000	Ireland.....	32,600	4,390,000	Union of South Africa.....	473,200	5,973,000
Quebec.....	706,800	2,380,000	Bulgaria.....	42,000	4,500,000	British West Af- rica.....	447,500	19,862,000
Saskatchewan.....	251,700	853,000	Czecho-Slovakia..	56,300	13,500,000	<i>French Sphere of Influence</i>		
Yukon Territory	207,100	9,000	Denmark.....	17,100	3,171,000	Algeria.....	222,200	5,564,000
Northwest Ter- ritories.....	1,242,200	18,000	Estonia.....	23,200	1,750,000	French Equato- rial Africa.....	672,000	9,000,000
Central America ...	219,500	5,516,000	Finland.....	126,000	3,277,000	French West Af- rica and Saha- ra.....	2,807,000	12,720,000
British Honduras	8,600	42,000	France.....	212,700	41,476,000	Madagascar.....	228,000	3,545,000
Costa Rica.....	23,000	459,000	Germany.....	171,800	55,086,000	Morocco.....	221,000	5,400,000
Guatemala.....	48,300	2,004,000	Greece (total)...	56,000	5,500,000	Tunis.....	50,000	1,940,000
Honduras.....	44,300	806,000	Hungary.....	36,600	8,800,000	<i>Italian Sphere of Influence</i>		
Nicaragua.....	49,200	746,000	Italy.....	110,600	36,120,000	Libia.....	406,000	528,000
Panama (exclu- sive of Canal Zone).....	32,400	337,000	Latvia.....	25,000	1,250,000	<i>Portuguese Sphere of Influence</i>		
Panama Canal Zone.....	500	23,000	Jugo-Slavia.....	117,200	14,798,000	Mosambique (Port. East Africa).....	428,100	3,012,000
Salvador.....	13,200	1,299,000	Netherlands, The.	13,200	6,779,000	<i>Spanish Sphere of Influence</i>		
Greenland.....	827,300	13,000	Norway.....	125,000	2,632,000	Spanish Moroc- co.....	11,000	600,000
Labrador.....	120,000	4,000	Poland.....	141,900	30,072,000	<i>Independent Coun- tries</i>		
Mexico.....	767,200	15,116,000	Portugal.....	35,500	5,958,000	Abyssinia.....	350,000	8,000,000
Newfoundland.....	42,700	255,000	Rumania.....	122,300	17,393,000	Liberia.....	40,000	2,000,000
United States.....	3,027,000	105,709,000	Russia in Europe..	1,371,200	85,420,000			
West Indies.....	91,800	9,974,000	Spain.....	194,800	20,720,000			
Bahama Islands.	4,400	60,000	Sweden.....	173,000	5,814,000			
Cuba.....	44,200	2,899,000	Switzerland.....	16,000	3,937,000			
Dominican Re- public.....	19,300	955,000	Turkey in Europe.	2,200	1,281,000			
Haiti.....	10,200	2,500,000	Ukraine.....	498,100	46,000,000			
Jamaica.....	4,400	891,000	Asia	17,000,000	885,000,000			
Lesser Antilles..	5,600	1,343,000	Afghanistan.....	245,000	6,381,000			
South America	7,222,000	62,630,000	Arabian Peninsula.	986,000	4,850,000			
Argentina.....	1,153,000	8,279,000	Armenia.....	75,600	4,028,000			
Bolivia.....	514,000	2,890,000	Ceylon.....	25,500	4,686,000			
Brazil.....	3,276,000	30,492,000	Chinese Republic.	4,277,100	327,910,000			
British Guiana.....	89,500	311,000	Dutch East Indies.	983,900	48,040,000			
Chile.....	290,000	3,046,000	Indian Empire.....	1,802,800	315,156,000			
Colombia.....	441,000	5,420,000	Japanese Empire..	260,700	77,005,000			
Dutch Guiana.....	46,000	108,000	Malay Peninsula..	503,800	28,967,000			
Ecuador.....	118,000	2,000,000	Mesopotamia.....	143,300	2,849,000			
French Guiana.....	32,000	26,000	Palestine.....	9,000	648,000			
Paraguay.....	65,000	1,000,000	Persia.....	628,000	9,500,000			
Peru.....	722,000	4,900,000	Siberia.....	4,831,900	10,378,000			
Uruguay.....	72,000	1,430,000	Syria.....	106,700	3,134,000			
Venezuela.....	309,000	2,225,000	Turkestan (Rus- sian).....	420,800	6,684,000			
			Turkey in Asia....	97,800	3,719,000			
			Australia, New Zealand, and Larger Islands of the Pacific					
			Australia, 1919	2,975,000	5,141,000			
			New Zealand.....	105,000	1,130,000			

TWENTY-FIVE LARGEST CITIES IN THE WORLD

	Population		Population		Population
1. New York, U. S.	5,621,000	10. Moscow, Russia.....	1,817,000	18. Constantinople, Turkey.....	1,000,000
2. London, England.....	4,358,000	11. Buenos Aires, Argentina.....	1,637,000	19. Peking, China.....	1,000,000
3. Paris, France.....	2,898,000	12. Hankow, China.....	1,444,000	20. Shanghai, China.....	1,000,000
4. Chicago, U. S.	2,702,000	13. Osaka, Japan.....	1,253,000		
5. Petrograd, Russia.....	2,319,000	14. Calcutta, India.....	1,222,000	21. Detroit, U. S.	994,000
6. Tokyo, Japan.....	2,173,000	15. Rio de Janeiro, Brazil.....	1,125,000	22. Bombay, India.....	979,000
7. Berlin, Germany.....	1,898,000			23. Hamburg, Germany.....	931,000
8. Vienna, Austria.....	1,839,000	16. Glasgow, Scotland.....	1,111,000	24. Canton, China.....	900,000
9. Philadelphia, U. S.	1,623,000	17. Mexico City, Mexico.....	1,080,000	25. Budapest, Hungary.....	880,000

UNITED STATES AND POSSESSIONS

State	Area in Square Miles	Population 1920	State	Area in Square Miles	Population 1920	State	Area in Square Miles	Population 1920
Alabama.....	52,000	2,348,000	Mississippi.....	46,900	1,791,000	Virginia.....	42,000	2,309,000
Arizona.....	114,000	334,000	Missouri.....	69,400	3,404,000	Washington.....	69,100	1,367,000
Arkansas.....	53,300	1,752,000	Montana.....	147,200	349,000	West Virginia.....	24,200	1,464,000
California.....	158,300	3,427,000	Nebraska.....	77,500	1,206,000	Wisconsin.....	56,100	2,632,000
Colorado.....	103,900	940,000	Nevada.....	110,700	77,000	Wyoming.....	97,900	194,000
Connecticut.....	5,000	1,381,000	New Hampshire.....	9,300	448,000	United States (continental).....	3,027,000	105,709,000
Delaware.....	2,400	223,000	New Jersey.....	8,200	3,158,000	<i>Outlying Possessions.</i>		12,149,000
District of Columbia.....	70	438,000	New Mexico.....	122,600	380,000	Alaska.....	590,900	55,000
Florida.....	58,700	968,000	New York.....	49,200	10,385,000	American Samoa.....	102	8,000
Georgia.....	59,300	2,896,000	North Carolina.....	52,400	2,556,000	Guam.....	225	13,000
Idaho.....	83,900	432,000	North Dakota.....	70,600	646,000	Hawaii.....	6,450	256,000
Illinois.....	56,700	6,485,000	Ohio.....	41,000	5,759,000	<i>Military and naval service abroad.</i>		117,000
Indiana.....	36,400	2,930,000	Oklahoma.....	70,000	2,028,000	Panama Canal Zone.....	500	23,000
Iowa.....	56,100	2,404,000	Oregon.....	96,700	783,000	Philippine Islands.....	115,000	10,351,000
Kansas.....	82,200	1,769,000	Pennsylvania.....	45,100	8,720,000	Porto Rico.....	3,600	1,300,000
Kentucky.....	40,600	2,417,000	Rhode Island.....	1,250	604,000	Virgin Islands of U. S.....	130	26,000
Louisiana.....	48,500	1,799,000	South Carolina.....	31,000	1,684,000	Total United States.....	3,743,907	117,858,000
Maine.....	33,000	768,000	South Dakota.....	77,600	637,000			
Maryland.....	12,300	1,450,000	Tennessee.....	42,000	2,338,000			
Massachusetts.....	8,300	3,852,000	Texas.....	265,900	4,663,000			
Michigan.....	58,000	3,668,000	Utah.....	85,000	449,000			
Minnesota.....	84,700	2,397,000	Vermont.....	9,600	352,000			

TWENTY-FIVE LARGEST CITIES IN THE UNITED STATES

TWENTY-FIVE LARGEST CITIES IN THE UNITED STATES			
Population 1920		Population 1920	
1. New York.....	5,621,000	10. Los Angeles, Cal.....	577,000
2. Chicago, Ill.....	2,702,000	11. San Francisco, Cal.....	508,000
3. Philadelphia, Pa.....	1,823,000	12. Buffalo, N. Y.....	507,000
4. Detroit, Mich.....	994,000	13. Milwaukee, Wis.....	457,000
5. Cleveland, Ohio.....	797,000	14. Washington, D. C.....	438,000
6. St. Louis, Mo.....	773,000	15. Newark, N. J.....	414,000
7. Boston, Mass.....	748,000	16. Cincinnati, Ohio.....	401,000
8. Baltimore, Md.....	734,000	17. New Orleans, La.....	387,000
9. Pittsburgh, Pa.....	588,000	18. Minneapolis, Minn.....	381,000
		19. Kansas City, Mo.....	324,000
		20. Seattle, Wash.....	316,000
		21. Indianapolis, Ind.....	314,000
		22. Jersey City, N. J.....	298,000
		23. Rochester, N. Y.....	296,000
		24. Portland, Ore.....	258,000
		25. Denver, Colo.....	256,000

CITIES OF THE UNITED STATES HAVING A POPULATION OF 25,000 OR OVER, INCLUDING THE CAPITAL AND LARGEST CITY OF EACH STATE

	Population 1920		Population 1920		Population 1920
Akron, Ohio.....	208,000	Charleston, W. Va.....	40,000	Everett, Mass.....	40,000
Alameda, Cal.....	29,000	Charlotte, N. C.....	46,000	Everett, Wash.....	28,000
Albany, N. Y.....	113,000	Chattanooga, Tenn.....	58,000	Fall River, Mass.....	120,000
Albuquerque, N. M.....	15,000	Chelsea, Mass.....	43,000	Fargo, N. D.....	22,000
Allentown, Pa.....	74,000	Chester, Pa.....	58,000	Fitchburg, Mass.....	41,000
Altoona, Pa.....	60,000	Cheyenne, Wyo.....	14,000	Flint, Mich.....	92,000
Amsterdam, N. Y.....	34,000	Chicago, Ill.....	2,702,000	Fort Smith, Ark.....	29,000
Anderson, Ind.....	30,000	Chicopee, Mass.....	36,000	Fort Wayne, Ind.....	87,000
Annapolis, Md.....	11,000	Cicero, Ill.....	45,000	Fort Worth, Tex.....	106,000
Asheville, N. C.....	29,000	Cincinnati, Ohio.....	401,000	Frankfort, Ky.....	10,000
Atlanta, Ga.....	201,000	Clarksburg, W. Va.....	28,000	Fresno, Cal.....	45,000
Atlantic City, N. J.....	51,000	Cleveland, Ohio.....	797,000	Galveston, Tex.....	44,000
Auburn, N. Y.....	36,000	Clifton, N. J.....	26,000	Gary, Ind.....	55,000
Augusta, Ga.....	53,000	Colorado Springs, Colo.....	30,000	Grand Rapids, Mich.....	138,000
Augusta, Me.....	14,000	Columbia, S. C.....	38,000	Green Bay, Wis.....	31,000
Aurora, Ill.....	36,000	Columbus, Ga.....	31,000	Hagerstown, Md.....	28,000
Austin, Tex.....	35,000	Columbus, Ohio.....	237,000	Hamilton, Ohio.....	40,000
Baltimore, Md.....	734,000	Concord, N. H.....	22,000	Hammond, Ind.....	36,000
Bangor, Me.....	26,000	Council Bluffs, Iowa.....	36,000	Hamtramck, Mich.....	49,000
Baton Rouge, La.....	22,000	Covington, Ky.....	57,000	Harrisburg, Pa.....	76,000
Battle Creek, Mich.....	36,000	Cranston, R. I.....	29,000	Hartford, Conn.....	138,000
Bay City, Mich.....	48,000	Cumberland, Md.....	30,000	Haverhill, Mass.....	54,000
Bayonne, N. J.....	77,000	Dallas, Tex.....	159,000	Hazleton, Pa.....	32,000
Beaumont, Tex.....	40,000	Danville, Ill.....	34,000	Helena, Mont.....	12,000
Bellingham, Wash.....	26,000	Davenport, Iowa.....	57,000	Highland Park, Mich.....	46,000
Berkeley, Cal.....	56,000	Dayton, Ohio.....	153,000	Hoboken, N. J.....	68,000
Bethlehem, Pa.....	50,000	Decatur, Ill.....	44,000	Holyoke, Mass.....	60,000
Binghamton, N. Y.....	67,000	Denver, Colo.....	256,000	Honolulu, Hawaii.....	83,000
Birmingham, Ala.....	178,000	Des Moines, Iowa.....	126,000	Houston, Tex.....	138,000
Bismarck, N. D.....	7,000	Detroit, Mich.....	994,000	Huntington, W. Va.....	50,000
Bloomington, Ill.....	29,000	Dover, Del.....	4,000	Indianapolis, Ind.....	314,000
Boise, Idaho.....	21,000	Dubuque, Iowa.....	39,000	Irvington, N. J.....	26,000
Boston, Mass.....	748,000	Duluth, Minn.....	99,000	Jackson, Mich.....	48,000
Bridgeport, Conn.....	144,000	East Chicago, Ind.....	36,000	Jackson, Miss.....	23,000
Brookton, Mass.....	66,000	East Cleveland, Ohio.....	27,000	Jacksonville, Fla.....	92,000
Brookline, Mass.....	38,000	Easton, Pa.....	24,000	Jamestown, N. Y.....	39,000
Buffalo, N. Y.....	507,000	East Orange, N. J.....	51,000	Jefferson City, Mo.....	14,000
Burlington, Vt.....	23,000	East St. Louis, Ill.....	67,000	Jersey City, N. J.....	298,000
Butte, Mont.....	42,000	Elgin, Ill.....	27,000	Johnstown, Pa.....	67,000
Cambridge, Mass.....	110,000	Elizabeth, N. J.....	96,000	Joliet, Ill.....	38,000
Camden, N. J.....	116,000	Elmira, N. Y.....	45,000	Joplin, Mo.....	30,000
Canton, Ohio.....	87,000	El Paso, Tex.....	78,000	Juneau, Alaska.....	3,000
Carson City, Nev.....	2,000	Erie, Pa.....	93,000	Kalamazoo, Mich.....	49,000
Cedar Rapids, Iowa.....	46,000	Evanston, Ill.....	37,000	Kansas City, Kan.....	101,000
Charleston, S. C.....	68,000	Evansville, Ind.....	85,000	Kansas City, Mo.....	324,000

Population 1920		Population 1920		Population 1920	
Kearny, N. J.	27,000	New York, N. Y.	5,621,000	San Antonio, Tex.	181,000
Kenosha, Wis.	40,000	Niagara Falls, N. Y.	51,000	San Diego, Cal.	75,000
Kingston, N. Y.	27,000				
Knoxville, Tenn.	78,000	Norfolk, Va.	116,000	San Francisco, Cal.	508,000
Kokomo, Ind.	30,000	Norristown, Pa.	32,000	San José, Cal.	40,000
La Crosse, Wis.	30,000	Norwalk, Conn.	28,000	San Juan, P. R.	72,000
Lakewood, Ohio	42,000	Norwich, Conn.	30,000	Santa Fé, N. M.	7,000
Lancaster, Pa.	53,000	Oakland, Cal.	216,000	Savannah, Ga.	83,000
Lansing, Mich.	57,000				
Lawrence, Mass.	94,000	Oak Park, Ill.	40,000	Schenectady, N. Y.	89,000
		Ogden, Utah	33,000	Scranton, Pa.	138,000
Lewiston, Me.	32,000	Oaklahoma City, Okla.	91,000	Seattle, Wash.	316,000
Lexington, Ky.	42,000	Olympia, Wash.	9,000	Sheboygan, Wis.	31,000
Lima, Ohio	41,000	Omaha, Neb.	192,000	Shreveport, La.	44,000
Lincoln, Neb.	55,000				
Little Rock, Ark.	65,000	Orange, N. J.	33,000	Sioux City, Iowa	71,000
		Oshkosh, Wis.	33,000	Sioux Falls, S. D.	25,000
Long Beach, Cal.	58,000	Pasadena, Cal.	45,000	Somerville, Mass.	93,000
Lorain, Ohio	37,000	Passaic, N. J.	64,000	South Bend, Ind.	71,000
Los Angeles, Cal.	577,000	Paterson, N. J.	136,000	Spokane, Wash.	104,000
Louisville, Ky.	235,000				
Lowell, Mass.	113,000	Pawtucket, R. I.	64,000	Springfield, Ill.	59,000
		Pensacola, Fla.	31,000	Springfield, Mass.	130,000
Lynchburg, Va.	30,000	Peoria, Ill.	76,000	Springfield, Mo.	40,000
Lynn, Mass.	99,000	Perth Amboy, N. J.	42,000	Springfield, Ohio	61,000
McKeesport, Pa.	46,000	Petersburg, Va.	31,000	Stamford, Conn.	40,000
Macon, Ga.	53,000				
Madison, Wis.	38,000	Philadelphia, Pa.	1,823,000	Steubenville, Ohio	29,000
		Phoenix, Ariz.	29,000	Stockton, Cal.	40,000
Malden, Mass.	49,000	Pierre, S. D.	3,000	Superior, Wis.	40,000
Manchester, N. H.	78,000	Pittsburgh, Pa.	588,000	Syracuse, N. Y.	172,000
Manila, P. I.	284,000	Pittsfield, Mass.	42,000	Tacoma, Wash.	97,000
Mansfield, Ohio	28,000				
Marion, Ohio	28,000	Plainfield, N. J.	28,000	Tallahassee, Fla.	6,000
		Pontiao, Mich.	34,000	Tampa, Fla.	51,000
Medford, Mass.	39,000	Port Huron, Mich.	26,000	Taunton, Mass.	37,000
Memphis, Tenn.	162,000	Portland, Me.	69,000	Terre Haute, Ind.	66,000
Meriden, Conn.	35,000	Portland, Ore.	258,000	Toledo, Ohio	243,000
Meridian, Miss.	23,000				
Miami, Fla.	30,000	Portsmouth, Ohio	33,000	Topeka, Kan.	50,000
		Portsmouth, Va.	54,000	Trenton, N. J.	119,000
Milwaukee, Wis.	457,000	Poughkeepsie, N. Y.	35,000	Troy, N. Y.	72,000
Minneapolis, Minn.	381,000	Providence, R. I.	238,000	Tulsa, Okla.	72,000
Mobile, Ala.	60,000	Pueblo, Colo.	43,000	Utica, N. Y.	94,000
Moline, Ill.	31,000				
Montclair, N. J.	29,000	Quincy, Ill.	36,000	Waco, Tex.	39,000
		Quincy, Mass.	48,000	Waltham, Mass.	31,000
Montgomery, Ala.	43,000	Racine, Wis.	59,000	Warren, Ohio	27,000
Montpelier, Vt.	7,000	Raleigh, N. C.	24,000	Washington, D. C.	438,000
Mount Vernon, N. Y.	43,000	Reading, Pa.	108,000	Waterbury, Conn.	91,000
Muncie, Ind.	37,000				
Muskogon, Mich.	37,000	Revere, Mass.	29,000	Waterloo, Iowa	36,000
		Reno, Nev.	12,000	Watertown, N. Y.	31,000
Muskogee, Okla.	30,000	Richmond, Ind.	27,000	West Hoboken, N. J.	40,000
Nashua, N. H.	28,000	Richmond, Va.	172,000	West New York, N. J.	30,000
Nashville, Tenn.	118,000	Roanoke, Va.	51,000	Wheeling, W. Va.	54,000
Newark, N. J.	414,000				
Newark, Ohio	27,000	Rochester, N. Y.	296,000	Wichita, Kan.	72,000
		Rockford, Ill.	66,000	Wichita Falls, Tex.	40,000
New Bedford, Mass.	121,000	Rock Island, Ill.	35,000	Wilkes-Barre, Pa.	74,000
New Britain, Conn.	59,000	Rome, N. Y.	26,000	Wilmington, Del.	110,000
New Brunswick, N. J.	33,000	Sacramento, Cal.	66,000	Wilmington, N. C.	33,000
Newburgh, N. Y.	30,000				
New Castle, Pa.	45,000	Saginaw, Mich.	62,000	Williamsport, Pa.	36,000
		St. Joseph, Mo.	78,000	Winston-Salem, N. C.	48,000
New Haven, Conn.	163,000	St. Louis, Mo.	773,000	Woonsocket, R. I.	43,000
New London, Conn.	26,000	St. Paul, Minn.	235,000	Worcester, Mass.	180,000
New Orleans, La.	387,000	St. Thomas, V. I.	8,000		
Newport, Ky.	29,000			Yonkers, N. Y.	100,000
Newport, R. I.	30,000	Salem, Mass.	43,000	York, Pa.	48,000
		Salem, Ore.	18,000	Youngstown, Ohio	132,000
Newport News, Va.	36,000	Salt Lake City, Utah	118,000	Zanesville, Ohio	30,000
New Rochelle, N. Y.	36,000				
Newton, Mass.	46,000				

FOREIGN CITIES, HAVING A POPULATION OF 250,000 OR MORE

	Population		Population		Population
Aleppo, Syria	250,000	Buenos Aires, Argentina	1,637,000	Glasgow, Scotland	1,117,000
Alexandria, Egypt	445,000	Cairo, Egypt	791,000	Hague, The, The Netherlands	352,000
Amsterdam, The Netherlands	644,000	Calcutta, India	1,222,000	Hamburg, Germany	931,000
Antwerp, Belgium	310,000	Canton, China	900,000	Hangchow, China	634,000
Bagdad, Mesopotamia	250,000	Charlottenburg, Germany	306,000	Hankow, China	1,444,000
Bahia, Brazil	348,000	Chemnitz, Germany	288,000	Hanover, Germany	302,000
Baku, Aserbaijan	250,000	Christiania, Norway	259,000	Havana, Cuba	361,000
Bangkok, Siam	541,000	Cologne, Germany	517,000	Hongkong, China	366,000
Barcelona, Spain	619,000	Constantinople, Turkey	1,000,000	Kiev, Ukraine	610,000
Belfast, Ireland	393,000	Copenhagen, Denmark	506,000	Kobe, Japan	609,000
Berlin, Germany	1,898,000	Damascus, Syria	250,000	Kyoto, Japan	591,000
Birmingham, England	862,000	Dortmund, Germany	282,000	Leeds, England	431,000
Bombay, India	979,000	Dresden, Germany	548,000	Leipzig, Germany	580,000
Bordeaux, France	262,000	Dublin, Ireland	399,000	Lisbon, Portugal	435,000
Bradford, England	283,000	Düsseldorf, Germany	359,000	Liverpool, England	773,000
Breslau, Germany	512,000	Edinburgh, Scotland	334,000	Lodz, Poland	424,000
Bristol, England	362,000	Essen, Germany	464,000	London, England	4,358,000
Brussels, Belgium	679,000	Foochow, China	624,000	Luoknow, India	280,000
Bucharest, Rumania	309,000	Frankfort, Germany	415,000	Lyon, France	524,000
Budapest, Hungary	880,000	Genoa, Italy	300,000	Madras, India	519,000

Population		Population		Population	
Madrid, Spain.....	652,000	Palermo, Sicily.....	346,000	Smyrna, Greek territory in Asia Minor.....	375,000
Magdeburg, Germany.....	280,000	Para (Balem), Brazil.....	275,000	Soochow, China.....	600,000
Manchester, England.....	741,000	Paris, France.....	2,888,000	Stockholm, Sweden.....	408,000
Marseille, France.....	551,000	Peking, China.....	1,000,000	Stuttgart, Germany.....	286,000
Melbourne, Australia.....	724,000	Petrograd, Russia.....	2,319,000	Sydney, Australia.....	798,000
Mexico City, Mexico.....	1,080,000	Prague, Czechoslovakia.....	617,000	Tashkend, Russian Turkestan.....	272,000
Milan, Italy.....	663,000	Rangoon, Burma.....	294,000	Tientsin, China.....	800,000
Montevideo, Uruguay.....	361,000	Riga, Latvia.....	569,000	Tiflis, Georgia.....	347,000
Montreal, Canada.....	700,000	Rio de Janeiro, Brazil.....	1,128,000	Tokyo, Japan.....	2,173,000
Moscow, Russia.....	1,817,000	Rome, Italy.....	591,000	Toronto, Canada.....	510,000
Munich, Germany.....	596,000	Rotterdam, The Netherlands.....	501,000	Turin, Italy.....	452,000
Nagoya, Japan.....	430,000	Saloniki, Greece.....	250,000	Vienna, Austria.....	1,839,000
Naples, Italy.....	698,000	Santiago, Chile.....	416,000	Warsaw, Poland.....	820,000
Ningpo, China.....	670,000	Sao Paulo, Brazil.....	450,000	West Ham, England.....	288,000
Nuremberg, Germany.....	333,000	Shanghai, China.....	1,000,000	Yokohama, Japan.....	423,000
Odessa, Ukraine.....	631,000	Sheffield, England.....	474,000		
Osaka, Japan.....	1,253,000	Singapore, Straits Settlements.....	260,000		

ELEVATION OF SOME PLATEAUS AND MOUNTAIN PEAKS

Feet		Feet		Feet	
Abyssinian Plateau.....	5-7,000	Fujiyama, Japan.....	12,365	Pike's Peak, Rocky Mountains, Colorado.....	14,111
Aconcagua, Andes, Argentina (highest in South America).....	22,860	Kanchanjanga, Himalayas, Nepal.....	28,156	Popocatepetl, Mexico.....	17,798
Apo, Mindanao, Philippines.....	10,312	Kenia, Africa.....	18,620	Rainier, Cascade Mountains, Washington.....	14,363
Ararat, Armenia.....	17,325	Kilimanjaro, Africa (highest in Africa).....	19,780	St. Elias, Alaska.....	18,025
Mt. Blanc, Alps, France (highest in Alps).....	15,781	Laesen, Sierra Nevada, Cal.....	10,577	San Francisco Mountain, Arizona.....	12,794
Bolivian Plateau.....	10-13,000	Logan, Coast Ranges, Canada (highest in Canada).....	19,539	Shasta, Cascade Mountains, California.....	14,380
Brazilian Plateau.....	2-2,500	McKinley, Alaska (highest in North America).....	20,300	Tibet Plateau.....	10-15,000
Chimborazo, Andes, Ecuador.....	20,498	Mauna Kea, Hawaiian Islands.....	13,805	United States, Western Plateau.....	4-6,000
Cotopaxi, Andes, Ecuador.....	19,613	Mauna Loa, Hawaiian Islands.....	13,675	Vesuvius, Italy.....	4,200
Elbrus, Caucasus, Russia (highest in Europe).....	18,200	Mexican Plateau.....	5-6,000	Washington, White Mountains, N. H. (highest in Northeastern U. S.).....	6,279
Etna, Sicily.....	10,835	Mitchell, Appalachian Mts., N. C. (highest in Eastern U. S.).....	6,711	Whitney, Sierra Nevada, California (highest in Continental U. S.).....	14,502
Everest, Himalayas, Nepal (highest in the world).....	29,002	Mt. Tina, Haiti.....	10,300		
		Orizaba, Mexico (highest in Mexico).....	18,314		

SOME OF THE LARGEST RIVERS OF THE WORLD

Length in Miles	Basin Area Sq. Miles	Ocean	Length in Miles	Basin Area Sq. Miles	Ocean	Length in Miles	Basin Area Sq. Miles	Ocean
North America			South America			Asia		
Arkansas.....	2,170	Atlantic	Amazon.....	3,300	Atlantic	Amur.....	2,800	Pacific
Colorado.....	2,000	Pacific	Orinoco.....	1,350	Atlantic	Brahmaputra.....	1,800	Indian
Columbia.....	1,400	Pacific	Plata.....	2,580	Atlantic	Ganges.....	1,500	Indian
Mackenzie.....	2,500	Arctic				Hwang.....	2,700	Pacific
Missouri.....	3,000	Atlantic	Europe			Lena.....	2,800	Arctic
			Danube.....	1,770	Atlantic	Ob.....	3,200	Arctic
Missouri-Mississippi.....	4,300	Atlantic	Dnieper.....	1,200	Atlantic	Yangtze.....	3,200	Pacific
Ohio.....	975	Atlantic	Dwina.....	1,000	Arctic	Yenisei.....	3,000	Arctic
Rio Grande.....	1,800	Atlantic				Africa		
St. Lawrence.....	2,200	Atlantic	Rhine.....	800	Atlantic	Kongo.....	2,800	Atlantic
Yukon.....	2,000	Pacific	Rhone.....	500	Atlantic	Niger.....	2,000	Atlantic
			Seine.....	482	Atlantic	Nile.....	3,400	Atlantic
			Volga.....	2,400	Caspian	Zambezi.....	1,500	Indian

SOME OF THE LARGEST LAKES OF THE WORLD

	Area in Sq. Miles	Elev- ation in Feet	Greatest Depth in Feet		Area in Sq. Miles	Elev- ation in Feet	Greatest Depth in Feet		Area in Sq. Miles	Elev- ation in Feet	Greatest Depth in Feet
Aral Sea.....	26,900	160	225	Great Bear Lake..	11,200	200	Nyasa.....	14,000	1,500	600+	
Baikal.....	12,500	1,312	4,550	Great Salt Lake..	2,360	4,218	Ontario.....	7,104	247	738	
Caspian.....	169,000	-85'	2,400	Great Slave Lake..	10,100	over 650	Superior.....	30,829	602	1,008	
Dead Sea.....	370	-1,310'	1,330	Huron.....	22,322	582	Tanganyika.....	12,650	2,800	2,100	
Erie.....	9,990	573	210	Manitoba.....	1,850	810	Victoria Nyanza.....	30,000	4,000	590+	
'Below sea level.				Michigan.....	21,729	582	Winnipeg.....	9,400	710	70	

INDEX AND PRONOUNCING VOCABULARY

KEY TO PRONUNCIATION

(Webster's International Dictionary)

a, as in *ale*; **ā**, as in *sen'āte*; **ā**, as in *cāre*; **ā**, as in *ām*; **ā**, as in *ārm*; **ā**, as in *āsk*; **e**, as in *fl'nal*; **e**, as in *all*; **ē**, as in *ēve*; **ē**, as in *ē-vent*; **ē**, as in *ēnd*; **ē**, as in *fērū*; **e**, as in *re'cent*; **i**, as in *ice*; **i**, as in *i-de'a*; **i**, as in *ill*; **i**, as in *police*; **ō**, as in *old*; **ō**, as in *ō-bey*; **ō**, as in *ōrb*; **ō**, as in *sōn*; **ō**, as in *ōdd*; **ū**, as in *ūse*; **ū**, as in *ū-nite*; **ū**, as in *rūde*; **u**, as in *full*; **ū**, as in *ūp*; **ū**, as in *ūrn*; **y**, as in *pit'y*; **ōō**, as in *fōōd*; **ōō**, as in *fōōt*; **ou**, as in *out*; **oi**, as in *oil*; **n**, representing simply the nasal tone of the preceding vowel, as in *ensemble* (ān'sān'b'l); ' (for voice glide), as in *pardon* (pār'd'n); **g** (hard), as in *go*; **s** (sharp), as in *so*; **z** (like *s* sonant), as in *zone*; **ch** (=tsh), as in *chair*; **sh**, for **ch**, as in *machine*; **zh** (=sh made sonant), for **z**, as in *azure*; **j** (=dzh), for **g**, as in *gem*; **k**, for **ch**, as in *chorus*; **kw**, for **qu**, as in *queen*; **ks** (surd), for **x**, as in *vex*; **gz** (sonant), for **x**, as in *exist*; **f**, for **ph**, as in *philosophy*; **hw**, for **wh**, as in *what*; **t**, for **ed**, as in *baked*; **ng**, as in *long*; **ŋ** (like *ng*), for **n** before the sound of **k** or hard **g**, as in *bank*; **n** (ordinary sound), as in *no*.

The primary accent is indicated by a short, heavy mark (ˈ), the secondary by a lighter mark (ˌ).

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